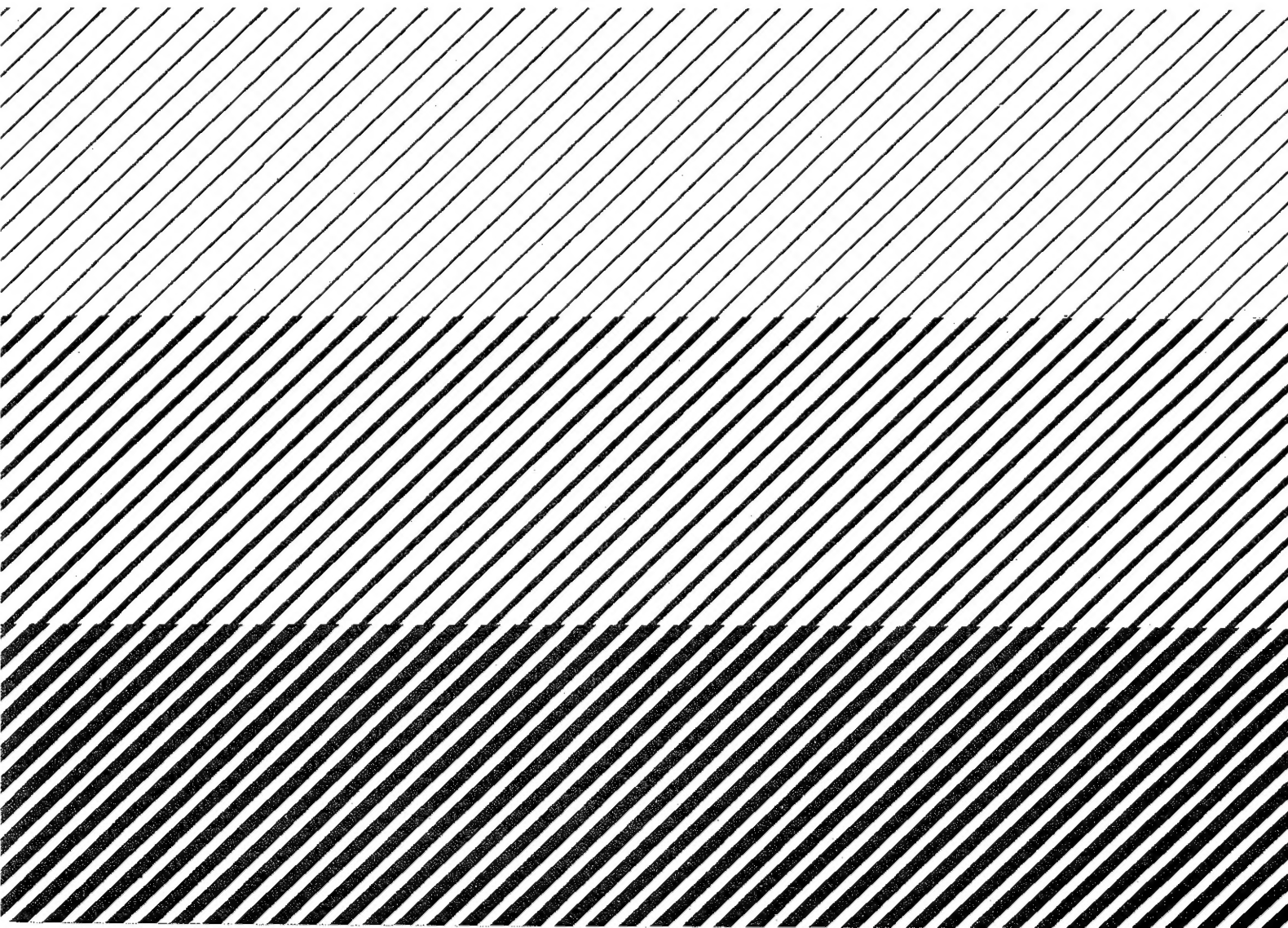


KAWAI

16 CHANNEL MIDI MIXER

MM-16

Owner's Manual



NOTE : This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Thank you for purchasing KAWAI MIDI Mixer MM-16!

The MM-16 is a multi-purpose MIDI data processor. With 17 front panel faders, it's most obvious capability is that of a 16 channel mixing console. But the MM-16 contains many other useful features including MIDI merge/split, spillover, patch editing via SYSTEM EXCLUSIVE messages and more.

Please read this owner's manual thoroughly before using the MM-16. It has been written to allow you to get the most of this instrument's capabilities with the least amount of effort.

FEATURES

1. MEGA MIX – As a mixing console for MIDI instruments, the MM-16 enables individual fader control of MIDI VOLUME for each of the 16 MIDI channels plus a MASTER VOLUME control.
2. CONTINUOUS CONTROL – In CHANNEL CONTROL function, the MM-16 gives you front panel access to all MIDI controller functions such as Modulation, Expression, Breath Control, Portamento, Pan etc.

In KEY BALANCE function, the 16 Faders become a "Graphic EQ" for VELOCITY data, so you can re-voice any instrument across the keyboard. This is useful for fine-tuning a mix or smoothing out uneven multi-samples.
3. EXCLUSIVE EDIT – As a synthesizer programmer, the MM-16 gives immediate control over synthesizer parameters via SYSTEM EXCLUSIVE data. The MM-16 comes setup for many popular instruments such as the Kawai K4/K4r, XD-5 or K1 series. Users can also create custom programs and save them via SYSTEM EXCLUSIVE data dump to a MIDI data filer such as the Kawai Q-80.
4. MERGER MANIA – As a merging/splitting device, the MM-16 enables two devices such as a keyboard and sequencer to be selectively merged into the same MIDI cable. The MM-16 will also split a MIDI signal into two, separating them by MIDI channel, Key number, Velocity level, or alternate between the two outputs to create spillover. The channelizing function will also change MIDI channels.
5. SETUP PATCH – The MM-16 also contains 64 SETUP patch memories, which remember Volume, Program change number and MIDI Channel convertment setting.
6. 2 sets of MIDI In, Out and Thru for merging and separation – The MM-16 is provided with 2 sets each of MIDI In, Out and Thru (6 terminals), so the architecture of the MIDI system including sequencer, master keyboard, sound source etc. is flexible. The 2 sets of MIDI In are always merged, and are output from the 2 sets of MIDI Out simultaneously. (For the Exclusive Message, Out 1 only)

Care and Maintenance

Proper Care

Your MM-16 is a delicate musical instrument. To prevent breakdowns and ensure years of reliable, trouble-free service, shield it from:

- Direct sunlight and exposure to the elements
- Extremes in temperature or humidity
- Dusty environment
- Vibration ... especially during transport

Power Supply

- Use only AC adaptor shipped with the MM-16 and connect it only to a power supply with a voltage within the limits stated on the ratings plate on the back.
- Make sure that all power switches are off before changing equipment connections.
- Check all equipment connections before applying the power.
- Do not connect to the same circuit as a heavy load or equipment that generates line noise.

Line Noise Reset

The high-speed microprocessor at the core of the MM-16 is extremely sensitive to line noise and sudden fluctuations in the supply voltage. Should it "lock up" under such conditions, simply turn the MM-16's power off for a few seconds and then reapply the power.

Cleaning

- Clean the instrument with a soft cloth, a mild detergent, and luke warm water.
- Never use harsh or abrasive cleansers or organic solvents.

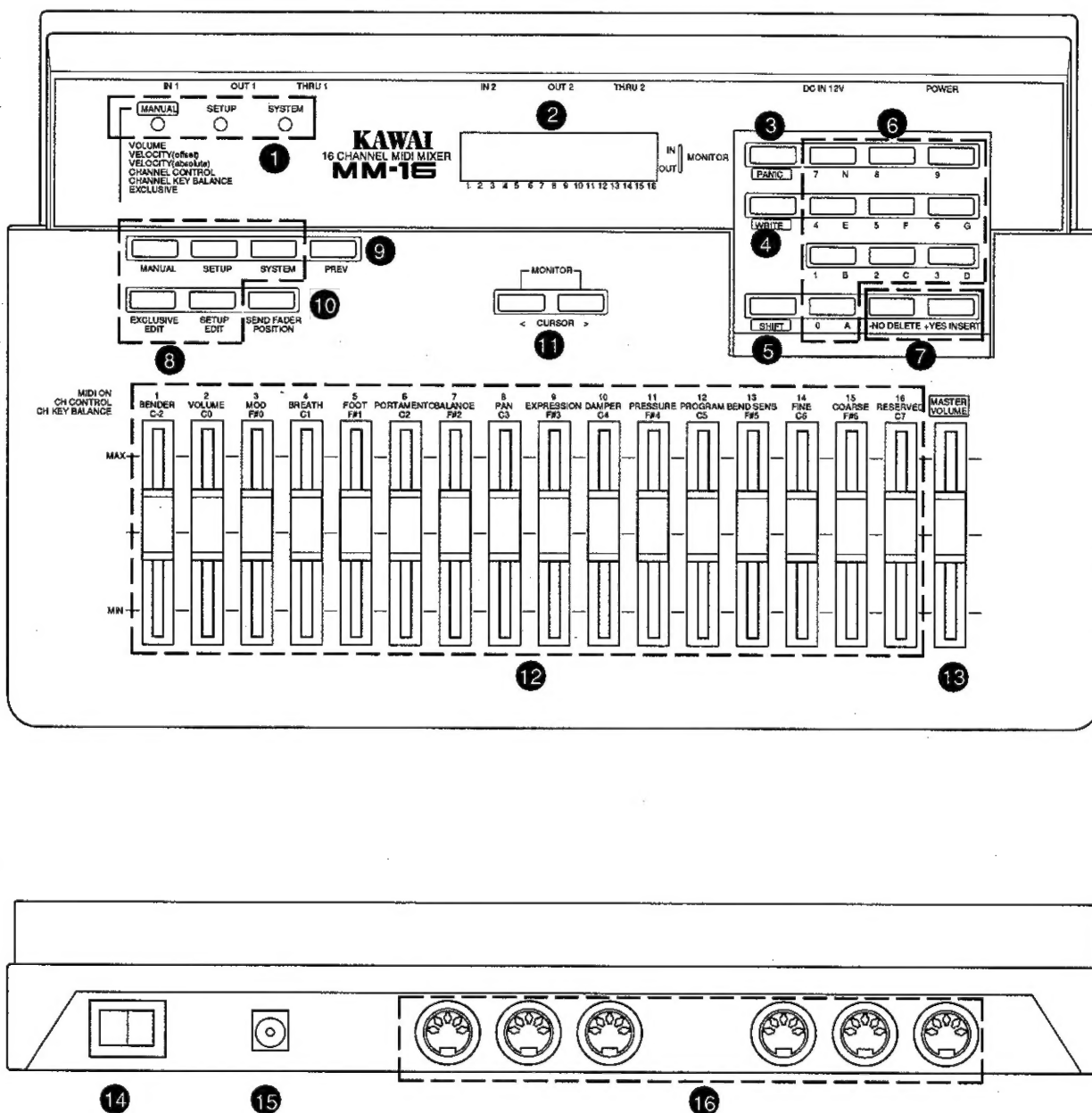
Battery Backup

The lithium battery that protects the memory contents while the power to the unit is off is good for more than five years of normal use. We recommend, however, that you have your nearest authorized service representative replace it promptly after five years.

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Name of Parts



① MODE INDICATOR (MANUAL/SETUP/SYSTEM)

Indicates what mode is now selected.

② DISPLAY (LCD)

Indicates the function now selected, and the values of each fader.

③ PANIC SWITCH

By pushing this switch, the following message is output.

- * ALL NOTE OFF message
- * RESET ALL CONTROLLER message
- * BEND RESET message (For 16 channels)
- * HOLD OFF message (For 16 channels)

If a malfunction occurs during the operation of the MM-16, such as an abnormal sound, push this switch.

④ WRITE SWITCH

Used to store changed SETUP patch and EXCLUSIVE FADER patch. (See p. 30 & 47.)

⑤ SHIFT SWITCH

This switch is used for the following purposes.

- * To input the Program Change Numbers.
- * To input characters / symbols.
- * To change the function of the VALUE Switch.

⑥ 10 KEYS

These keys are used to input the value.

**⑦ VALUE SWITCHES
(- NO/DELETE, + YES/INSERT)**

These switches are used to make a fine adjustment of the value, and to select the execution or termination of a command etc.

**⑧ MODE SELECT SWITCHES
(MANUAL/SETUP/SYSTEM/EXCLUSIVE
EDIT/SETUP EDIT)**

Selects between the following 5 modes, and calls up the functions in each of these 5 modes:

- a. MANUAL mode (See p. 9)
- b. SETUP mode (See p. 20)
- c. SYSTEM mode (See p. 31)
- d. EXCLUSIVE EDIT mode (See p. 43)
- e. SETUP EDIT mode (See p. 21)

⑨ PREVIOUS SWITCH

Calls up the the previously selected function

⑩ SEND FADER POSITION SWITCH

By pushing this switch, the MIDI Volume message corresponding to each fader position of 17 lines is output. (See p. 11)

⑪ CURSOR SWITCHES

Moves the cursor in the DISPLAY.

By pushing both switches simultaneously, the MIDI channels currently received and transmitted are displayed. (See p.50 "MONITOR Operation")

⑫ FADERS (1~16)

The faders adjust each Volume message of MIDI Channel 1-16, and transmit the Channel Message /Exclusive Message.

⑬ MASTER VOLUME FADER

This adjusts the Volume message of the MIDI 16 channels altogether.

⑭ POWER SWITCH

Turns the instrument's power on and off.

⑮ DC IN JACK

This jack is used to connect the AC adaptor.

⑯ MIDI JACKS (IN/OUT /THRU)

These are used to connect equipment to other MIDI device.

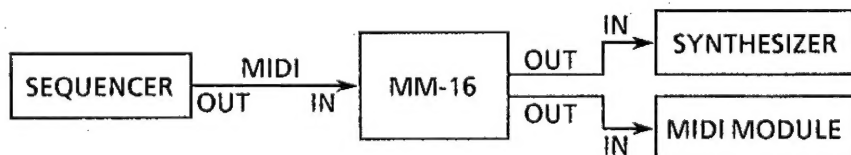
There are two separated system (1&2).

CONNECTIONS

The MM-16 is a MIDI mixer that can control all the MIDI instruments (synthesizer, module, sequencer etc.).

It has various uses, with almost unlimited applications. The most common uses (examples of connection to MIDI instruments) are as follows.

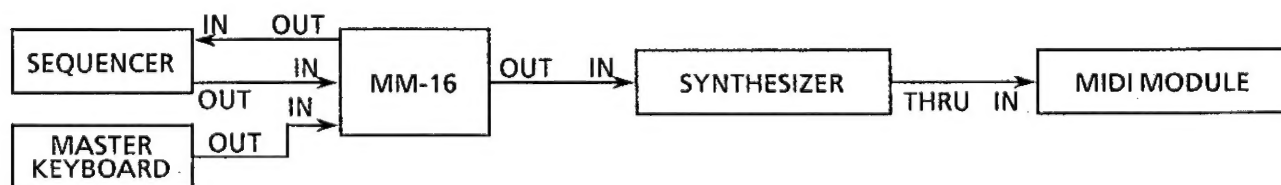
(1) When the sequencer is playing, adjust the volume of each sound source.



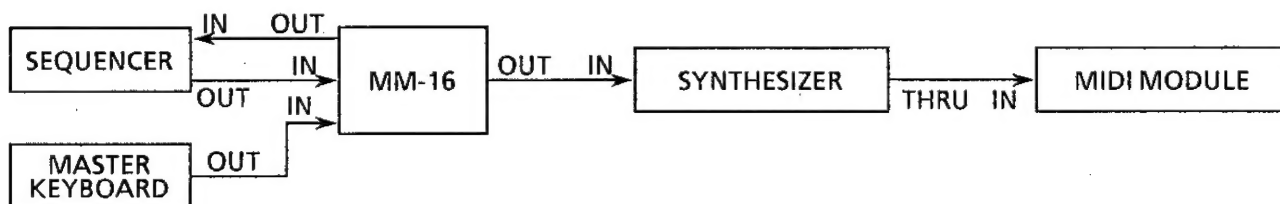
The sequencer transmits MIDI note information to recreate a musical performance. The MM-16's faders will add MIDI VOLUME information to each channel allowing you to mix your performance. (VOLUME FADER Function).

There are some types of sound source that cannot receive the volume information (refer to the MIDI Implementation Chart of your MIDI instrument). In such cases, the same effect can be achieved by increments/decrements of the VELOCITY value of the information on the musical performance, using the Velocity Adjustment Function (VELOCITY OFFSET/ABSOLUTE) of the MM-16.

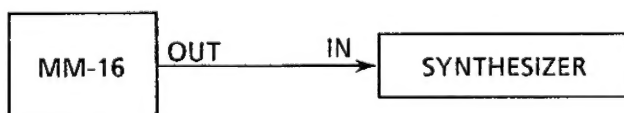
(2) Change the Control Change message in realtime, and store it in the sequencer (Compu-mix)



Record each part of your song with the sequencer in advance. Then while playing it back, use the faders to add Control Changes like modulation, pitch bend, panning, etc, to your sequence. In this way, the parts recorded in advance are provided with variation later. This is called "Compu-mix".

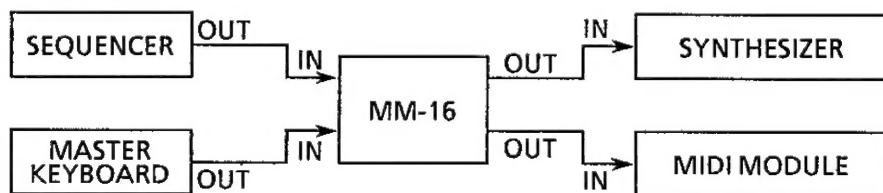
(3) Change the settings of the MIDI system instantly (using the the SETUP Patch)

- Send Program Change message from your controller to the MM-16.
- The SETUP Patch of the MM-16 is called up using this Program Change message.
- The MM-16 then transmits a PROGRAM CHANGE and a VOLUME message on all 16 channels, according to values that were stored in the SETUP patch. They are then transmitted to the external equipment to change the settings of all the equipment instantly.

(4) Edit the tone of the synthesizer (EXCLUSIVE FADER Function)

THE MM-16 transmits EXCLUSIVE messages which allow you to edit the tone parameters on your synthesizer using the MM-16's faders.

The tone of the synthesizer changes in realtime as the faders are moved. Therefore, by recording such exclusive messages on the sequencer, it is possible to change the tone during a musical performance.

(5) Route the MIDI information to separate outputs.

The MM-16 has 2 MIDI OUT terminals (OUT1, OUT2), which can each be used to transmit your MIDI information.

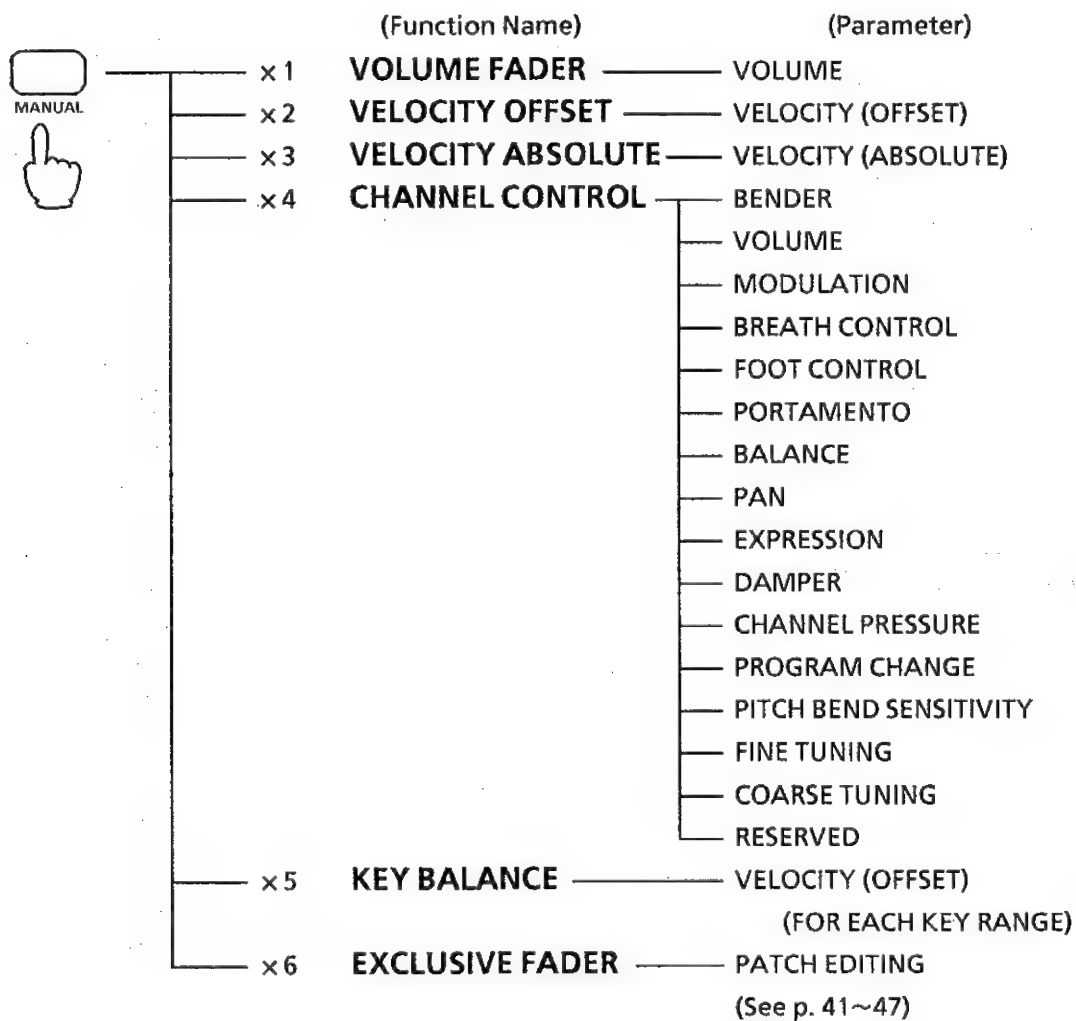
You can separate the MIDI data:

- * By the MIDI channel
- * By the MIDI note range
- * By the strength/weakness of the VELOCITY
- * By the even /odd number of MIDI Note number
- * By the Channel /Exclusive Message and the Real-time /System Common Message separately

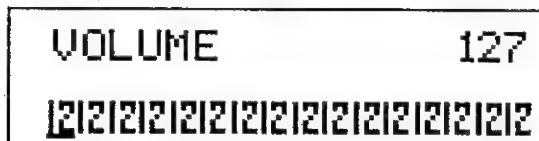
1. MANUAL MODE

This mode initiates the adjustment/transmission of the various items of MIDI message including the volume.

Pressing MANUAL switch calls the following functions/parameters.



1 - 1 VOLUME FADER



This functions as the most basic "MIDI MIXER", controlling the MIDI Volume message for the 16 channels.

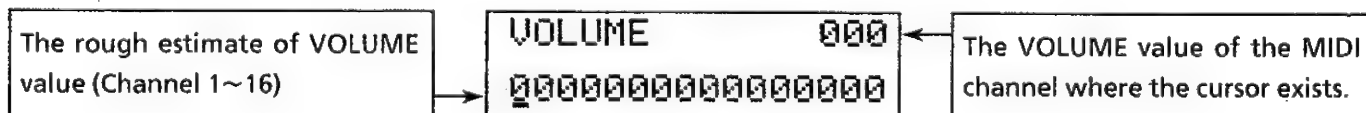
Each of the 16 Faders corresponds to MIDI Channel 1 through 16, while the Master Volume Fader adjusts the entire volume altogether.

FADER No.	This FADER Controls :	Value
1	Volume of Channel 1	000~127
}	}	}
16	Volume of Channel 16	000~127
MASTER	The entire volume (Channel 1~16)	000~127

<Procedure>

- (1) Press **MANUAL** switch and select the **VOLUME FADER** function.

The DISPLAY shows as follows:



- (2) Move the **MASTER VOLUME FADER** to the maximum position.



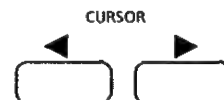
- (3) To move the cursor to the desired MIDI channel area:

- a. Move the Fader of desired MIDI channel.
(ex: channel 4 → Fader 4)
The cursor in the DISPLAY automatically moves to channel 4 area.
- b. Press **CURSOR** switch.
Pressing once moves the cursor to the next area.
Holding down causes the successive movement.

(a)



(b)



(4) To change the VOLUME value:

- a. Slide the fader (for large change).
- b. Use – NO/ + YES switches (for fine change).

(a)



(b)

**(5) Repeat (3) and (4) steps to set the volume value for all of 16 channels.****(6) Set the entire volume by moving MASTER VOLUME FADER.**MASTER
VOLUME

Note: If the MASTER VOLUME FADER is in its lowest position, the volume remains at 000, even if Faders 1~16 are turned to their highest position.

<SEND FADER POSITION Switch>

By pushing this switch, the Volume messages set by the 16 faders + the MASTER VOLUME FADER is transmitted to the external at one time.



This is useful when the current fader setting should be transmitted as it is, after returning to the VOLUME FADER function from another function.

Note: This switch is effective only at the VOLUME FADER Function.

1 - 2 VELOCITY OFFSET

VEL OFFSET 63
12121212121212121212121212121212

In this function you can set the OFFSET value of VELOCITY (separately for each of 16 MIDI channels).

Velocity Offset is "addition and subtraction of the Velocity Value". For example, if the Velocity Offset of channel 1 is set at "+63" with this function, then Velocity Value 63 will be added automatically to the MIDI Information of Channel 1 input into MM-16, followed by the result being output.

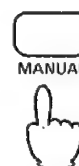
(Similarly, if the Velocity Offset is set to minus, then the Velocity Value will be output after the subtraction.)

FADER No.	This FADER Controls :	Value
1	OFFSET value of velocity for MIDI channel 1	-64 ~ +63
}	}	}
16	OFFSET value of velocity for MIDI channel 16	-64 ~ +63
MASTER	The entire volume (CH1~16)	

<Procedure>

- (1) Press MANUAL switch and select the VELOCITY OFFSET function.

The DISPLAY shows the value of VELOCITY OFFSET as follows:

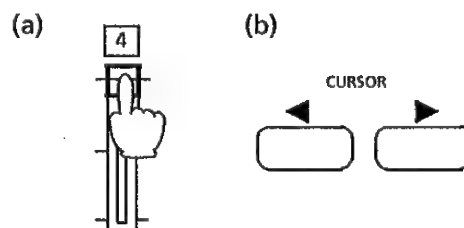


- (2) Move the MASTER VOLUME FADER to the maximum position.



- (3) To move the cursor to the desired MIDI channel area:

- Move the Fader of desired MIDI channel. (ex: channel 4 → Fader 4)
The cursor in the DISPLAY automatically moves to channel 4 area.
- Press CURSOR switch.
Pressing once moves the cursor to the next area.
Holding down causes the successive movement.



(4) To change the VELOCITY OFFSET value:

- a. Slide the fader (for large change).
- b. Use – NO/ + YES switches (for fine change).

(a)



(b)

**(5) Repeat (3) and (4) steps to set the VELOCITY OFFSET value for all of 16 channels.**MASTER
VOLUME**Note:** If VELOCITY OFFSETs result in a value

- less than 000, the VELOCITY value will be set to 001.
- greater than 127, the VELOCITY value will be set to 127.

1-3 VELOCITY ABSOLUTE

VEL ABSOLUTE 127

121212121212121212121212121212

In this function you can set the ABSOLUTE value of VELOCITY (separately for each of 16 MIDI channels).

This function makes the Velocity Value constant.

For example, if the Velocity Absolute of Channel 1 is set to "100" with this function, then all the MIDI information of Channel 1 input into MM-16 will be output as Velocity Value 100.

FADER No.	This FADER Controls :	Value
1	ABSOLUTE value of velocity for MIDI channel 1	000~127
}	}	}
16	ABSOLUTE value of velocity for MIDI channel 16	000~127
MASTER	The entire volume (Channel 1~16)	

<Procedure>

- (1) Press MANUAL switch and select the VELOCITY ABSOLUTE function.

The DISPLAY shows the value of VELOCITY ABSOLUTE as follows:



The rough estimate of VELOCITY ABSOLUTE value (Channel 1~16)

VEL ABSOLUTE 000
000000000000000000000000

The VELOCITY ABSOLUTE value of the channel where the cursor exists.

- (2) Move the MASTER VOLUME FADER to the maximum position.



- (3) To move the cursor to the desired MIDI channel area:

- Move the Fader of desired MIDI channel.
(ex: channel 4 → Fader 4)
The cursor in the DISPLAY automatically moves to channel 4 area.
- Press CURSOR switch.
Pressing once moves the cursor to the next area.
Holding down causes the successive movement.

(a)



(b)



(4) To change the VELOCITY ABSOLUTE value:

- a. Slide the fader (for large change).
- b. Use – NO/ + YES switches (for fine change).

(a)



(b)

**(5) Repeat (3) and (4) steps to set the VELOCITY ABSOLUTE value for all of 16 channels.**MASTER
VOLUME

Note: If the value is "000", then the Velocity Value will be output as "001".

1 - 4 CHANNEL CONTROL

CH01 BENDER 127

121212121212121212121212121212

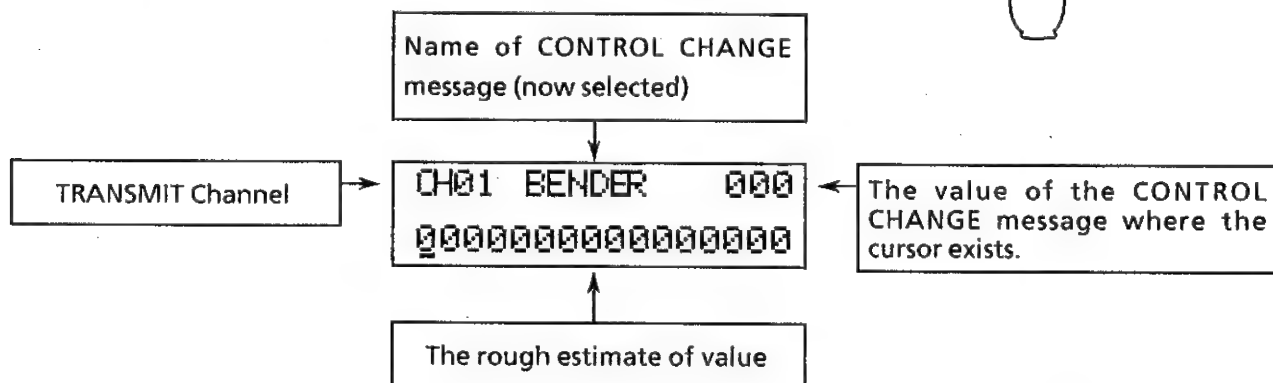
With this function, 16 kinds MIDI CONTROL CHANGE Message are transmitted to the external components.

FADER No.	This FADER Controls :	Value
1	Sending BENDER message	000~127
2	Sending VOLUME message	000~127
3	Sending MODULATION message	000~127
4	Sending BREATH CONTROL message	000~127
5	Sending FOOT CONTROL message	000~127
6	Sending PORTAMENTO message	000~127
7	Sending BALANCE message	000~127
8	Sending PAN message	000~127
9	Sending EXPRESSION message	000~127
10	Sending DAMPER message	000~127
11	Sending PRESSURE message	000~127
12	Sending PROGRAM CHANGE message	000~127
13	Sending PITCH BEND SENSITIVITY message	000~127
14	Sending FINE TUNING message	000~127
15	Sending COARSE TUNING message	000~127
16	Sending RESERVED message	000~127
MASTER	The entire volume (CH1~16)	

<Procedure>

- (1) Press MANUAL switch and select the CHANNEL CONTROL function.

The DISPLAY shows the value of each CONTROL CHANGE message as follows:



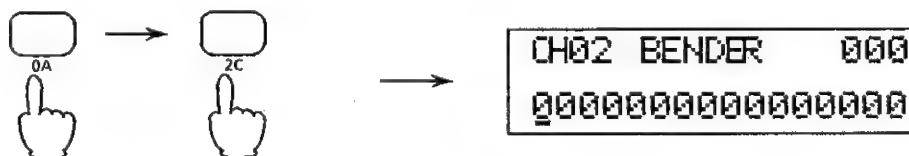
- (2) Move the **MASTER VOLUME FADER** to the maximum position.



- (3) Sets the **TRANSMIT** channel on which the above messages will be sent.

Press two of 10 KEYS to select the desired channel number.

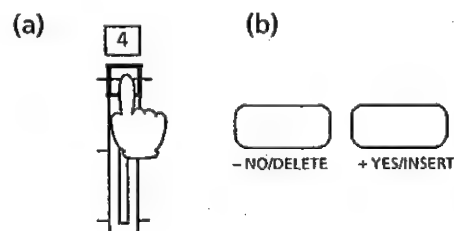
(ex: CH 2 ... 0 → 2 , CH 16 ... 1 → 6)



Note: The Transmit Channel set here is also effective with the "Key Balance" function described on page 18.

- (4) To move the cursor to the desired MIDI message area:

- a. Move the Fader of desired MIDI message. (ex: BREATH CONTROL → Fader 4)
The cursor in the DISPLAY automatically moves to BREATH CONTROL area.
- b. Press CURSOR switch.
Pressing once moves the cursor to the next area.
Holding down causes the successive movement.



- (5) To change the value of message:

- a. Slide the fader (for large change).
- b. Use - NO/ + YES switches (for fine change).



- (6) Repeat (4) and (5) steps to set the value of 16 CONTROL CHANGE messages.

Note: If the Master Volume Fader is in its lowest position, the volume remains at 000, even if the "Volume" of Fader 2 is turned to its highest position.

1-5 KEY BALANCE

KEY BALANCE 63

6666666666666666

In this function you can set OFFSET value of velocity each for the 16-separated key range.

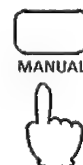
FADER No.	This FADER Controls :	Value
1	the OFFSET value of velocity for range C-2~B-1	-64~+63
2	the OFFSET value of velocity for range C-0~F-0	-64~+63
3	the OFFSET value of velocity for range F-#0~B-0	-64~+63
4	the OFFSET value of velocity for range C-1~F-1	-64~+63
5	the OFFSET value of velocity for range F-#1~B-1	-64~+63
6	the OFFSET value of velocity for range C-2~F-2	-64~+63
7	the OFFSET value of velocity for range F-#2~B-2	-64~+63
8	the OFFSET value of velocity for range C-3~F-3	-64~+63
9	the OFFSET value of velocity for range F-#3~B-3	-64~+63
10	the OFFSET value of velocity for range C-4~F-4	-64~+63
11	the OFFSET value of velocity for range F-#4~B-4	-64~+63
12	the OFFSET value of velocity for range C-5~F-5	-64~+63
13	the OFFSET value of velocity for range F-#5~B-5	-64~+63
14	the OFFSET value of velocity for range C-6~F-6	-64~+63
15	the OFFSET value of velocity for range F-#6~B-6	-64~+63
16	the OFFSET value of velocity for range C-7~F-7	-64~+63
MASTER	the entire volume (Channel 1-16)	

<Procedure>

(1) First, set the Transit Channel with the Channel Data Function. (See p. 17)

(2) Press MANUAL switch and select the KEY BALANCE function.

The DISPLAY shows the value of VELOCITY OFFSET as follows:



The rough estimate of velocity value (Each of 16 separated key range)

KEY BALANCE -64
6666666666666666

The velocity value of the key range where the cursor exists.

- (3) Move the **MASTER VOLUME FADER** to the maximum position.



- (4) To move the cursor to the desired key range area:

- Move the Fader of desired key range.
(ex: C1 – F1 → Fader 4)
The cursor in the DISPLAY automatically moves to the area of C1 – F1.
- Press CURSOR switch.
Pressing once moves the cursor to the next area.
Holding down causes the successive movement.

(a)



(b)



- (5) To change the **VELOCITY OFFSET** value:

- Slide the fader (for large change).
- Use – NO/ + YES switches (for fine change) .

(a)



(b)



- (6) Repeat (4) and (5) steps to set the **VELOCITY OFFSET** value for all of 16 – separated key range.

2. SETUP MODE

2-1 Selecting a SETUP patch

#01 BCDDEFG 127
1212121212121212121212121212

The MM-16 contains 64 "SETUP" patches.

A SETUP patch includes the following 5 types of setting:

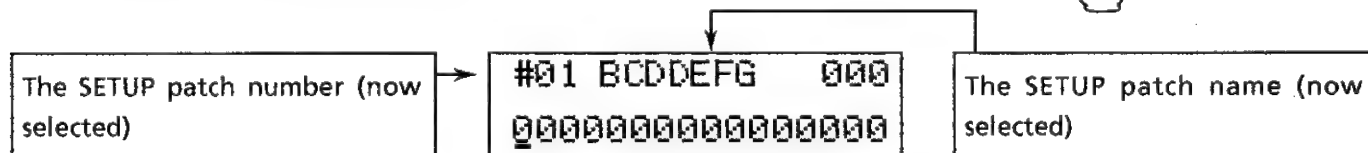
- CHANNEL VOLUME (For 16 channels)
- PROGRAM CHANGE NUMBER (For 16 channels)
- CHANNEL CONVERT (Possible to set independently for each of the 16 channels)
- FADER ON/OFF
- (SETUP PATCH NAME)

By selecting one Setup Patch, settings c through e are set on the MM-16, and a and b are transmitted automatically to the external components. In this way, the settings of the system consisting of many MIDI instruments can be changed at once.

<Selecting Operation>

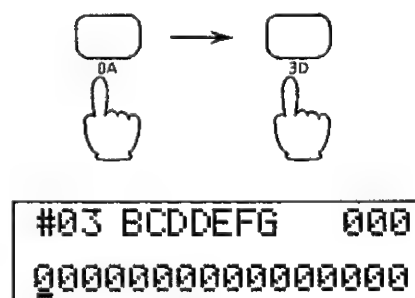
- (1) Press SETUP switch to enter the SETUP mode.

The DISPLAY shows as follows:



- (2) Press two from 10 keys (0~9) to select the desired SETUP patch number.

(ex: #03 ... [0] → [3], #52 ... [5] → [2])



Note: When a SETUP patch is selected, 16 FADERS and MASTER FADER controls MIDI VOLUME (same as the VOLUME FADER function in MANUAL mode).

If the faders are inoperative, check to insure they are turned ON on the FADER ON/OFF function explained in section D below.

2 – 2 SETUP Editing

The settings of all the 64 SETUP Patches can be changed according to your MIDI system. The procedure for this is called "Edit".

First enter to SETUP EDIT mode to change the setting of SETUP patch.

<Procedure>

(1) Select a SETUP patch to be edited. (See the page before)

(2) Press SETUP EDIT switch.

Pressing this switch calls the following functions successivley.



- x1 SETUP VOLUME
- x2 SETUP PROGRAM CHANGE
- x3 CHANNEL CONVERT
- x4 FADER ON / OFF
- x5 SETUP NAME



(3) Use the FADERS, 10 keys, + YES/ – NO and CURSOR switches and change the value/setting as you desire. (See each chapter explaining the desire function.)

(4) Write the edited SETUP patch.



A. SETUP VOLUME

SET.VOL.=ON 127
1212121212121212121212121212

When selecting a SETUP patch, the MM-16 automatically sends the VOLUME messages to the external MIDI devices (according to 16 MIDI channels). This function is called "SETUP VOLUME".

You can set the 16 different SETUP VOLUME value for each of 64 SETUP patches.

- (1) Enter to SETUP EDIT mode, and call up the SETUP VOLUME function. (See the page before)

The DISPLAY shows function name and parameters as follows:



Whether if selecting SETUP patch sends the VOLUME message or not.

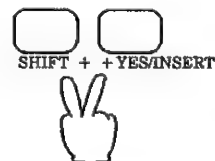
SET.VOL.=OFF 000
0000000000000000

The SETUP VOLUME value of the channel where the cursor exists.

The rough estimate of value (Channel 1~16)

- (2) Select ON or OFF.

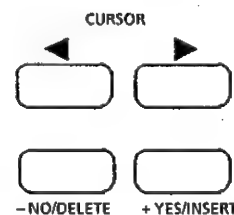
Hold down the SHIFT switch and press + YES switch.



ON : The SETUP VOLUME messages will be sent when selecting a SETUP patch.
OFF : The messages will not be sent.

- (3) Move the FADER, or use the CURSOR switches and + YES/- NO switches to set the VOLUME value. (The procedure is the same as that for "VOLUME FADER" setting described on page 10-11)

The correspondence between the FADERS and parameter/value is as the following chart shows.



FADER No.	This FADER Controls :	Value
1	The SETUP VOLUME value (MIDI channel : 1)	000~127
}	}	}
16	The SETUP VOLUME value (MIDI channel : 16)	000~127

- (4) Press the **SETUP EDIT** switch if you have additional functions to edit, or write the **SETUP** patch to store it in memory. (See "SETUP.WRITE".)



B. SETUP PROGRAM CHANGE

SET.PRG.=127

I T - T T T - - T - - T T T - T

Similar to SETUP VOLUME, you can send the PROGRAM CHANGE messages to the external MIDI devices (on all 16 MIDI channels) just by selecting a SETUP patch. This function is called "SETUP PROGRAM CHANGE".

Customize your SETUP PROGRAM CHANGEs as follows:

- (1) Enter SETUP EDIT mode, and call up SETUP PROGRAM CHANGE function. (See the page before)

The DISPLAY shows function name and parameters as follows:

Whether SETUP PROGRAM CHANGE send is ON or OFF.

SET.PRG.=000

The SETUP PROGRAM CHANGE number of the channel where the cursor exists.



- (2) Move the cursor to the desired MIDI channel area with the cursor switches.



CURSOR No.	This CURSOR Controls :	Value
1	The SETUP PROGRAM CHANGE number (MIDI channel : 1)	000~127
}	}	}
16	The SETUP PROGRAM CHANGE number (MIDI channel : 1)	000~127

- (3) Select whether the PROGRAM CHANGE is to be transmitted or not with - NO / + YES switches.



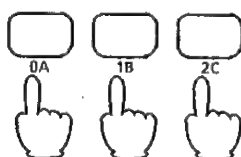
T : The PROGRAM CHANGE number will be transmitted.
- : The number will not be transmitted.

SET.PRG.=127

I - - - - -

- (4) Set a PROGRAM CHANGE number with 10 keys.

(ex: No. 012 ... [0] → [1] → [2], No. 127 ... [1] → [2] → [7])



SET.PRG.=012

I - - - - -

- (5) Repeat (2)~(5) steps until your desired programming is completed.
- (6) Press the **SETUP EDIT** switch if you have additional functions to edit, or write the **SETUP** patch to store it in memory. (See "SETUP WRITE".)



C. CHANNEL CONVERT

CH. CONVERT

12345678910111213141516

CHANNEL CONVERT allows you to remap the MIDI information on any channel to another MIDI channel. For example, if the CONVERT channel for channel 1 is set to "16", then all MIDI information input into the MM-16 on channel 1 will be sent out on channel 16.

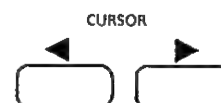
- (1) Enter the SETUP EDIT mode, and call up the CHANNEL CONVERT function. (See the page before)

The DISPLAY shows function name and parameters as follows:

CH. CONVERT

12345678910111213141516

- (2) Move the cursor to the desired MIDI channel place with the CURSOR switches.



CURSOR No.	This CURSOR sets :	Value
1	The converted channel to be set for MIDI ch : 1	1~16
}	}	}
16	The converted channel to be set for MIDI ch : 16	1~16

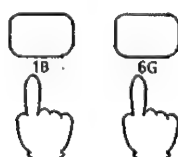
- (3) Change the value with the following switches.

+ YES/ - NO switches: increment or decrement the value by 1.



10 keys: press two of them to set the desired value.

(ex: ch 3 ... 0 → 3 , ch 16 ... 1 → 6)



CH. CONVERT

162345678910111213141516

- (4) Repeat (2) and (3) steps until your desired setting is completed.

- (5) Press the **SETUP EDIT** switch if you have additional functions to edit, or write the **SETUP** patch to store it in memory.
(See "SETUP WRITE".)



Note: The Convert channel set here is unrelated to

- * the channel set with the **CHANNEL CONTROL** Function.
- * the **SYSTEM** channel.

D. FADER ON/OFF

FADER=ON

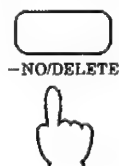
Selects whether the FADERS control the MIDI VOLUME in SETUP mode or not.

- (1) Enter the SETUP EDIT mode, and call up the FADER ON/OFF function. (See the page before)

The DISPLAY shows function name and parameters as follows:

FADER=ON

- (2) Use + YES / - NO switches to set ON or OFF.



FADER=OFF

- (3) Press the SETUP EDIT switch if you have additional functions to edit, or write the SETUP patch to store it in memory. (See "SETUP WRITE ")



E. SETUP NAME

SETUP NAME

ABCDEFGH

You can name each of the 64 SETUP patches.

- (1) Enter the SETUP EDIT mode, and call up the SETUP NAME function. (See the page before)

The DISPLAY shows function name and parameters as follows:

SETUP NAME

ABCDEFGH

- (2) To set (or change) the SETUP NAME:

- a. Move the cursor with CURSOR keys.

CURSOR



- b. Call up the desired letter with + YES/ - NO switches.
(The following letters are available.)



!"#\$%&'(>)*+,-./0123456789:;<=?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_
`abcdefghijklmnopqrstuvwxyz{|}~

- c. Repeat a and b until all of 8 letters are set.

- (3) Press the SETUP EDIT switch if you have additional functions to edit, or write the SETUP patch to store it in memory.
(See "SETUP WRITE")

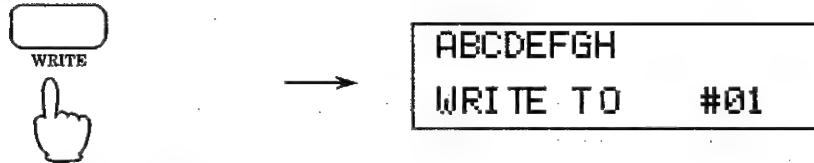


2 - 3 SETUP WRITE

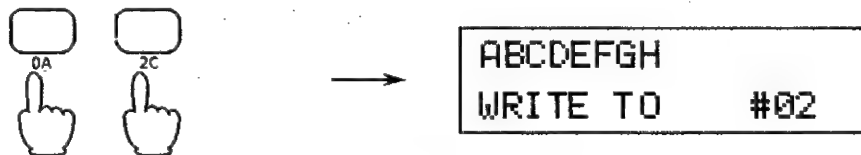
The edited SETUP Patch can be stored in the main unit, and can be selected again later.

To store the edited SETUP patch:

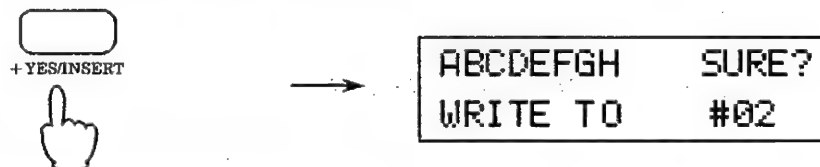
- (1) Press the WRITE switch.



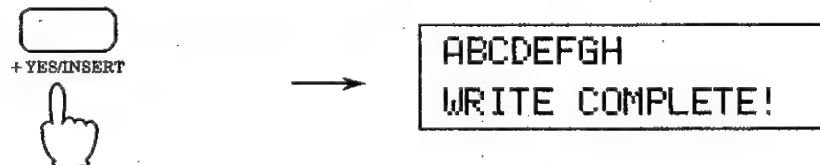
- (2) Set the patch number "for storage" with 10 keys.
(ex: #02 ... →)



- (3) Press + YES switch to write. → DISPLAY shows "SURE?"



Press + YES again to complete. → returns to SETUP mode.



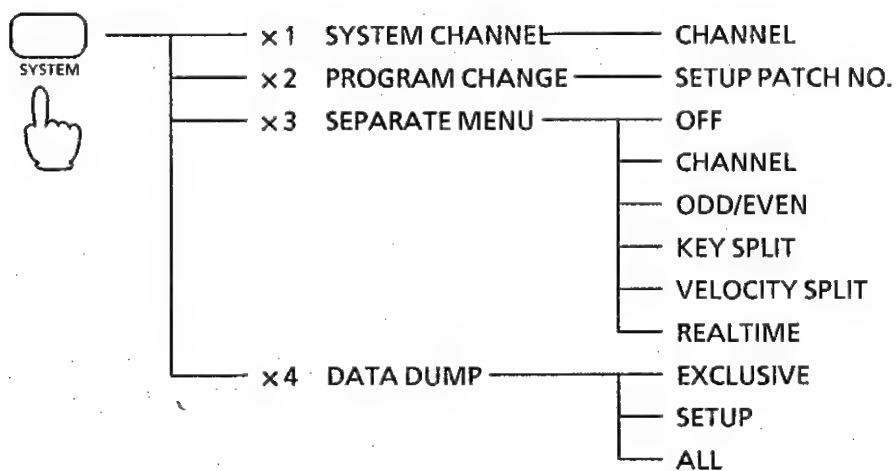
Or press - NO to cancel. → returns to step (2).



3. SYSTEM MODE

In this SYSTEM mode you can set the values that affect the entire MM-16 unit.

Pressing SYSTEM switch calls the following functions successively.



3 - 1 SYSTEM CHANNEL

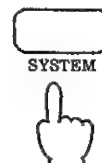
SYSTEM CH. = 01

Sets the entire MIDI channel of the MM-16.

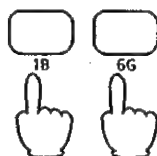
- (1) Press **SYSTEM** switch and call the **SYSTEM CHANNEL** function.

The DISPLAY shows as follows:

SYSTEM CH. = OFF



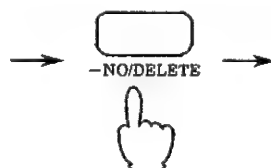
- (2) Set the **SYSTEM** channel by pressing two of 10 keys.
(ex : ch 16 ... **1** → **6**)



SYSTEM CH. = 16

Note: The value "OFF" means that the MM-16 will not change the SETUP patch when receiving PROGRAM CHANGE message. (See the following "SETUP LINK".)
If you want to call "OFF", press **- NO** switch after setting the **SYSTEM CHANNEL**. Pressing **+ YES** recalls the channel number.

SYSTEM CH. = 16



SYSTEM CH. = OFF

3-2 SETUP LINK

SETUP LINK

PRG.NO=000 #01

The Setup Patch of the MM-16 can be switched by the Program Change Message transmitted from the external components.

With this function, the setting "Which Program Change Message Number should correspond to which Set-up Patch Number" is executed.

- (1) Press SYSTEM switch and call the SETUP LINK function.

The DISPLAY shows as follows:



The PROGRAM CHANGE number

SETUP LINK
PRG.NO=000

The SETUP patch number which will be called when receiving the PROGRAM CHANGE message set on a.

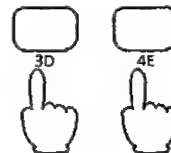
- (2) Select a SETUP patch number.

- a. Press CURSOR switch to move the cursor to patch number area.



SETUP LINK
PRG.NO=000 #01

- b. Set the patch number by pressing two of 10 keys.
(ex : # 34 ... 3 → 4)



SETUP LINK
PRG.NO=000 #34

- (3) Move the cursor back to PROGRAM CHANGE number area with CURSOR switch.

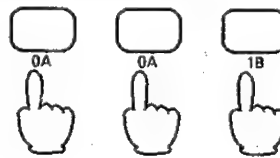


SETUP LINK
PRG.NO=000 #34

- (4) Set the PROGRAM CHANGE number which corresponds to the SETUP path.

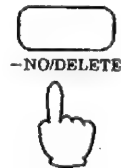
Press three of 10 keys.

(ex : 001 ... 0 → 0 → 1)



SETUP LINK	
PRG.NO=001	#64

Note: In this step, pressing - NO switch sets the value "# --" which means that no SETUP patch will be called when receiving the program change number set on the following step. This is useful to prevent the unexpected patch changing (for example, during live performance).



SETUP LINK	
PGM.NO=127	#--

- (5) Repeat the (2)~(4) steps until your desired setting is completed.

Note: In any of the following states, the Patch is not switched, even if the Program Change is received.

- * when the SETUP EDIT Mode is entered.
- * when the SYSTEM CHANNEL is in the "OFF" position (See page 32)

3 - 3 SEPARATE MENU

SEPARATE MENU

TYPE= OFF

The MM-16 has 2 MIDI OUT jacks (OUT1, OUT2). You can separate the MIDI messages, independently for each of the 16 MIDI channels, between the two MIDI OUTs by the following methods.

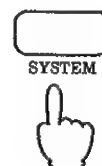
OFF	The same MIDI messages will be output from both OUT1 and OUT2.
CHANNEL	Separates the messages according to MIDI channel.
ODD/EVEN	Separates the messages between ODD note number and EVEN note number.
KEY SPLIT	Separates the messages according to split note range.
VEL SPLIT	Separates the messages according to velocity.
REAL TIME	Separates the messages between CHANNEL/EXCLUSIVE messages and SYSTEM COMMON/REALTIME messages.

A. OFF

- (1) Press the SYSTEM switch and call the SEPARATE MENU function.

The DISPLAY shows as follows.

SEPARATE MENU
TYPE= OFF



- (2) Call the value "OFF" with + YES / - NO switches.



B. CHANNEL

- (1) Press the SYSTEM switch and call the SEPARATE MENU function.



- (2) Call the value "CHANNEL" with + YES / - NO switches.



SEPARATE MENU
TYPE= CHANNEL

- (3) Press SYSTEM switch, and the DISPLAY shows follows.



SEPA CH.
-

- (4) Move the cursor to the desired MIDI channel area with CURSOR switches.



- (5) Set the value with + YES / - NO switches:

(Blank) ... output from both OUT1/OUT2

1 ... output from OUT1

2 ... output from OUT2

- ... no output

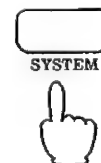


- (6) Repeat (4) and (5) steps to set all settings for 16 MIDI channels.

SEPA CH.
1122121---112211

C. ODD/EVEN

- (1) Press the SYSTEM switch and call the SEPARATE MENU function.

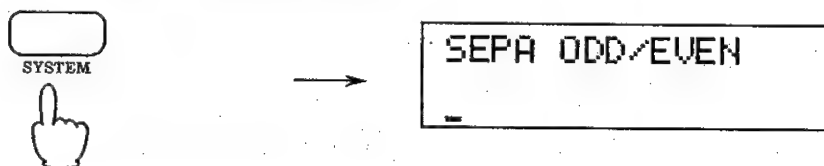


- (2) Call the value "ODD /EVEN" with + YES / - NO switches.

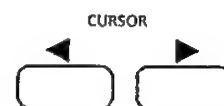


SEPARATE MENU
TYPE= ODD/EVEN

- (3) Press SYSTEM switch, and the DISPLAY shows follows.



- (4) Move the cursor to the desired MIDI channel area with CURSOR switches.



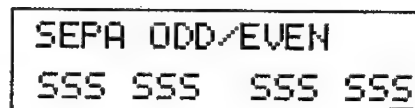
- (5) Set the value:



S ... ODD note numbers will be output from
OUT1, and EVEN note numbers from OUT2.

(Blank) ... Same messages will be output from the
OUT1/OUT2.

- (6) Repeat (4) and (5) steps to set all settings for 16 MIDI channels.

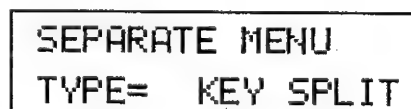


D. KEY SPLIT

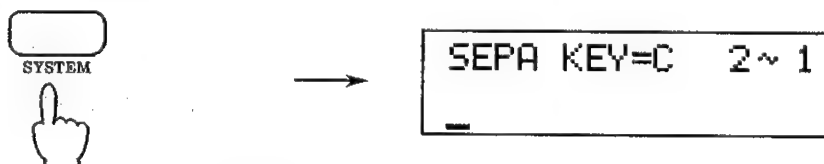
- (1) Press the SYSTEM switch and call the SEPARATE MENU function.



- (2) Call the value "KEY SPLIT" with + YES / - NO switches.



- (3) Press SYSTEM switch, and the DISPLAY shows follows.

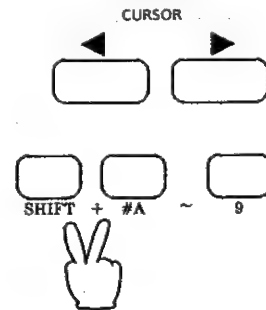


- (4) Move the cursor to the desired MIDI channel area with CURSOR switches.

- (5) Set the split point using the following switches.

Number (1~8) ... Use 10 keys.

Alphabet (A~G) and sharp (#) ... Use SHIFT key and 10 keys.



(ex: To set the split point "A#8" ...)

- Hold down SHIFT switch and press "0" key. → The value "A" is set.
- Hold down SHIFT switch and press "7" key. → The value "#" is set.
- Press "8" key. → The value "8" is set.

SEPA KEY=A#8~ 1

- (6) Decide whether this KEY SPLIT operation is effective for the channel or not with + YES/ - NO switches.

S ... effective for the channel

(Blank) ... not effective



SEPA KEY=A#8~ 2
S

- (7) Repeat (4)~(6) steps to set all settings for 16 MIDI channels.

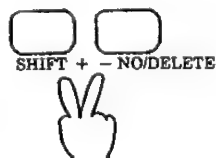
SEPA KEY=A#8~ 1
SS SS SSSS S S

- (8) Set the OUTPUT assignment.

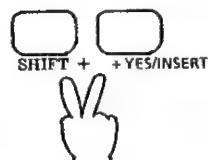
Pressing SHIFT switch and + YES (or - NO) switch simultaneously changes the assignment.

1 ... Notes above the split point will be output from OUT1, and notes below the split point will be output OUT2.

2 ... Notes below the split point will be output from OUT1, and notes above the split point will be output OUT2.



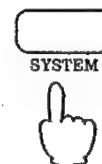
SEPA KEY=A#8~ 2
SS SS SSS S S



SEPA KEY=A#8~ 1
SS SS SSS S S

E. VELOCITY SPLIT

- (1) Press the SYSTEM switch and call the SEPARATE MENU function.

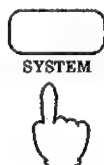


- (2) Call the value "VEL SPLIT" with + YES / - NO switches.



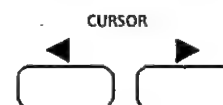
SEPARATE MENU
TYPE= VEL SPILT

- (3) Press SYSTEM switch, and the DISPLAY shows follows.

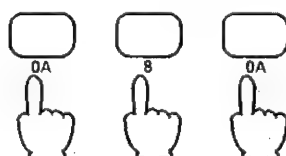


SEPA VEL=064~ 1

- (4) Move the cursor to the desired MIDI channel area with CURSOR switches.



- (5) Set the VELOCITY split point (with 10 keys).
(ex : 080 ... 0 → 8 → 0)



SEPA VEL=080~ 1

- (6) Decide whether this VELOCITY SPLIT operation is effective for the channel or not with + YES/ - NO switches.



S ... effective for the channel

(Blank) ... not effective

- (7) Repeat (4)~(6) steps to set all settings for 16 MIDI channels.

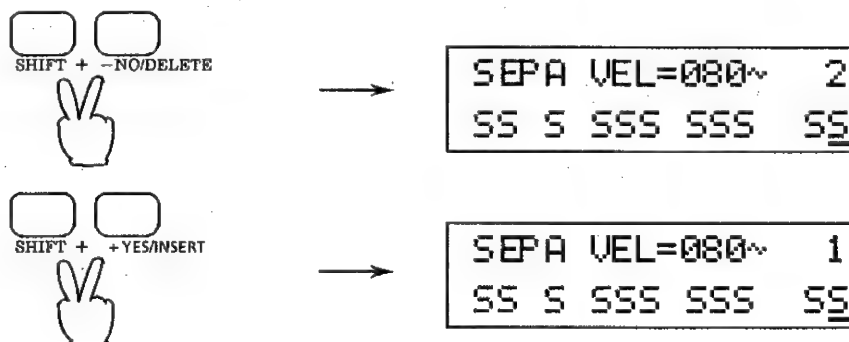
SEPA VEL=080~ 1
SS S SSS SSS SS

(8) Set the OUTPUT assignment.

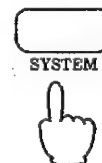
Pressing SHIFT switch and +YES (or -NO) switch simultaneously changes the assignment.

1 ... Notes above the split point will be output from OUT1, and notes below the split point will be output OUT2.

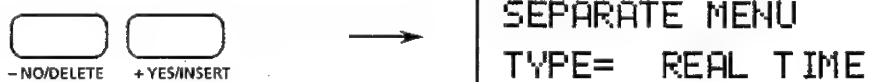
2 ... Notes below the split point will be output from OUT1, and notes above the split point will be output OUT2.

**F. REAL TIME**

(1) Press the SYSTEM switch and call the SEPARATE MENU function.



(2) Call the value "REAL TIME" with +YES / -NO switches.



When "Real Time" is displayed, the messages are output as follows.

Channel Message and Exclusive Message - From Out 1

System Common/Real Time Message - From Out 2

Note: The Real Time Message input through MIDI In 2 is output from neither MIDI Out 1 nor 2, as it is ignored at the MM-16 side.

4. EXCLUSIVE FADER OPERATION

4-1 EXCLUSIVE FADER

A function exists called the Exclusive Fader in the MM-16 manual mode.

This function is used to edit synthesizer or module tones from the MM-16. Each fader is assigned a parameter within the synthesizer, allowing you to quickly change parameter values and produce your sounds.

With this function, the 16 faders are controlled as one "EXCLUSIVE FADER patch".

The 16 Fader Patches are incorporated into the main unit.

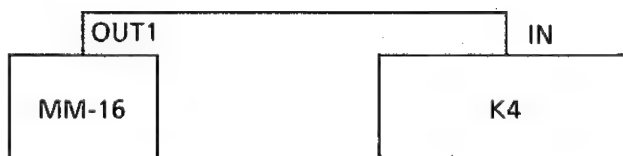
<Procedure>

In this example, we use Kawai K4 as a synthesizer to be edited.

The EXCLUSIVE FADER patches #05~#10 are preset-programmed to edit the K4.

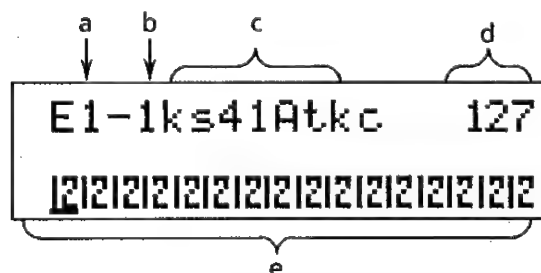
The basic procedure for editing is as follows.

- (1) Connect the MM-16 and K4 shown below.



- (2) Set the K4's SYSTEM RECEIVE CHANNEL "1", and select a SINGLE patch to be edited. (It is not necessary to enter the K4's SINGLE EDIT mode.)
- (3) Press MM-16's MANUAL switch and call the "EXCLUSIVE FADER" function.

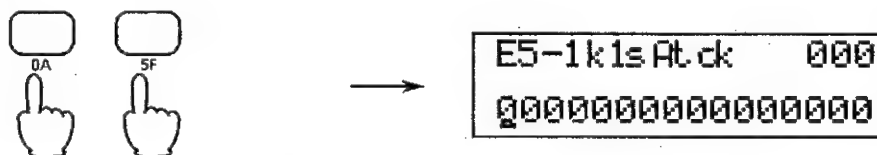
The following are displayed:



- Exclusive Fader Patch number
- Currently functioning fader number
- Exclusive message name
- Exclusive Fader value
- Each Fader value (approx.)

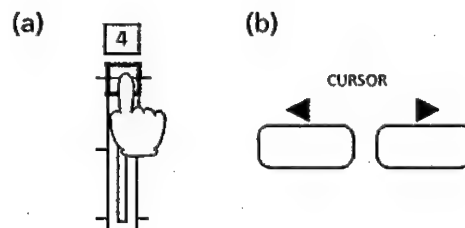
(4) Select a desired EXCLUSIVE FADER patch with 10 keys.

(ex : E5 ... 0 → 5, E16 ... 1 → 6)



(5) To move the cursor to the desired EXCLUSIVE FADER area:

- a. Move the desired EXCLUSIVE FADER.
The cursor in the DISPLAY automatically moves to the desired FADER area.
- b. Press CURSOR switch.
Pressing once moves the cursor to next area.
Holding down causes the successive movement.



(6) Move the FADER and play the synthesizer's keyboard and confirm that the sound had changed.

(7) Repeat (4)~(6) steps until you complete the editing.

(8) After editing, follow the WRITE procedure in your synthesizer's manual if you wish to store the new sound.
(See K4's Owner's Manual.)

<Preset EXCLUSIVE FADER patches for Kawai Synthesizer>

The MM - 6 includes preset EXCLUSIVE FADER patches for editing Kawai K1 /K4/XD - 5 synthesizers.

#05~#10: K4/K4r

#11~#13: XD - 5

#14~#16: K1/K1 II /K1m /K1r /K1r II

If you have the above - mentioned Kawai synthesizer, please test your MM-16 with the EXCLUSIVE FADER function.

(The detailed list of EXCLUSIVE FADER control is shown on p. 52 ~ 54.)

4-2 EXCLUSIVE EDIT

The settings of Exclusive Fader Patch #01 through #04 can be changed as desired. If the Exclusive Message of your MIDI instruments is set here, the MM-16 can edit the tone of these components.

Note: The patches for #05 through #16 have been preset (fixed), so the setting cannot be changed.

When changing the setting, the following procedures are necessary to enter the Exclusive Edit mode.

- (1) Select a **EXCLUSIVE FADER** patch to be edited.
- (2) Press **EXCLUSIVE EDIT** switch to enter the **EXCLUSIVE EDIT** mode.

The DISPLAY shows as follow.

K4s1 Attack	01
40 00 10 00 04	



The following 2 kinds of function exist in the Exclusive Edit mode:

- A. **EXCLUSIVE DATA EDIT** (sets the Exclusive Message)
- B. **EXCLUSIVE NAME EDIT** (names the Exclusive Fader)

The procedures for the setting are as follows.

A. EXCLUSIVE DATA EDIT

k4s1Atck 01
40 00 10 00 04

This function is used to input the Exclusive Message of the MIDI instruments. A maximum of up to 16 bytes can be input.

The Exclusive Message consists of the HEX code (hexadecimal) of a maximum of 16 bytes as follows.

1	2	3	4	5	6	...	14	15	16
F0H	40H	00H	10H	00H	04H		00H	##H	F7H

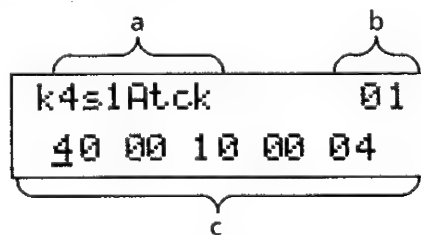
Note: As for the Exclusive Message controlling your MIDI instrument, refer to the MIDI data format attached to the component.

Note: When inputting the Exclusive Message, F0 (status byte) and F7 (end of exclusive) are transmitted automatically by the MM-16, so there is no need to input data using these functions.

The DISPLAY shows 5 bytes at one time.

- (1) Enter the EXCLUSIVE EDIT mode (See below) and call the EXCLUSIVE DATA EDIT function.

The DISPLAY shows as follows:



- a. Exclusive Fader name
- b. Byte number of the current cursor
- c. Exclusive Message (for 5 bytes)

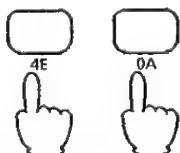
- (2) Move the cursor to the byte area of the value to be changed (using the cursor switch).



k4s1Atck 05
40 00 10 00 04

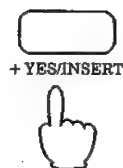
- (3) Input the value.

- a. To replace a HEX code by new code: → press two of 10 keys successively.
(ex: To enter "40" → press 4 and 0 successively.)



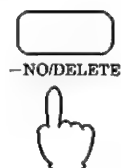
k4s1Atck 05
40 00 10 00 40

- b. To insert a new HEX code: → press INSERT switch (The code "00" is inserted before cursor.)



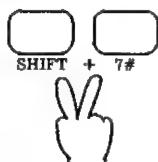
k4s1Atck	05
00 10 00 00 04	

- c. To delete a HEX code: → press DELETE switch (The code where cursor exists is deleted.)



k4s1Atck	05
40 00 10 00 07	

- d. To replace a HEX code by "##": → Simultaneously press SHIFT and "7" switches.



k4s1Atck	05
40 00 10 00 ##	

- Note:
- * "##" stands for parameter. The value set with the Fader is substituted here.
 - * "##" can be input only one parameter for one Exclusive Message.
 - * "##" cannot be input a parameter for the 1st byte.
 - * The message in the 1st (first) byte cannot be deleted.

(4) Repeat steps (2) and (3), and input a value for all the bytes.

(5) After the input has been completed:

- a. Call the Exclusive Name Edit Function, by pressing the EXCLUSIVE EDIT switch, or
- b. Use the Write Function.

Note: The MM-16 may not function properly when used with EXCLUSIVE messages from equipment not manufactured by Kawai.

B. EXCLUSIVE NAME EDIT

EXCLUSIVE NAME

k1s1Dcay

Name the Exclusive Messages that have been input.

(Control will be easier if the same names as the function names of the MIDI instrument side are used.)

- (1) Enter to EXCLUSIVE EDIT mode, and call up the EXCLUSIVE NAME EDIT function.

The DISPLAY shows as follows:

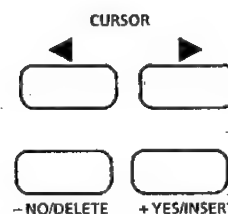
EXCLUSIVE NAME

k4s1Dcay



- (2) To set (or change) the EXCLUSIVE NAME:

- a. Move the cursor with CURSOR keys.
- b. Call up the desired letter with + YES / - NO switches.
(The following letters are available.)



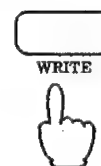
!"#\$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[^_
`abcdefghijklmnopqrstuvwxyz{|}~

- c. Repeat a and b until all of 8 letters are set.
- (3) After the input has been completed:
 - a. Call the Exclusive Data Edit Function again, by pressing the Exclusive Edit Switch, or
 - b. Use the Write function. (See p. 47 "EXCLUSIVE WRITE")

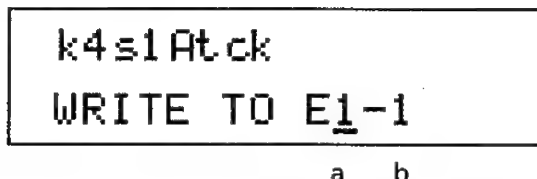
4-3 EXCLUSIVE WRITE

This function is used to store the Exclusive Messages input into one of the Exclusive Fader Patches.

- (1) Press **WRITE** switch.

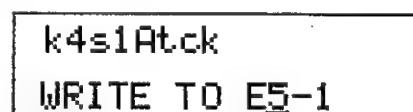
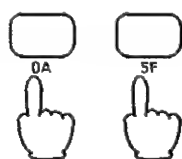


The **DISPLAY** shows as follows:



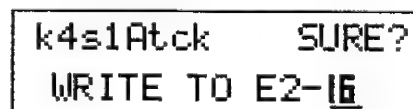
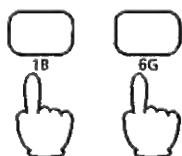
- a. The **EXCLUSIVE FADER** patch number to store the edited message.
- b. The **FADER** number to store the edited message.

- (2) Set the patch number (for storage) with 10 keys.

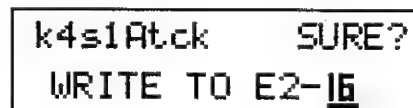


- (3) Set the **FADER** number (for storage)

- a. Press **CURSOR** switch to move the **FADER** number area.
- b. Set the number with 10 keys.
(ex: 5 ... [0] → [5], 16 ... [1] → [6])



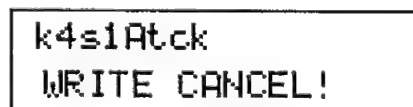
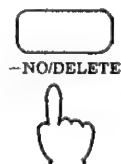
- (4) Press **+ YES** switch to write. → **DISPLAY** shown "SURE?"



Press **+ YES** again to complete. → returns to **EXCLUSIVE FADER** function.



Or press **- NO** to cancel. → returns to step (2).



5. OTHERS

5-1 DATA DUMP

The MM-16 can transmit 64 Setup Patches, Exclusive Fader Patches #01 through #04 and all the settings of the SYSTEM as an EXCLUSIVE message for storage on external equipment such as a Kawai Q-80 sequencer or a personal computer. This data can then be transmitted back to the MM-16 for re-use. Therefore, this is useful when a large amount of Patch data which you make independently is to be stored.

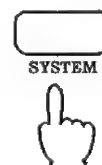
This Data Dump function is located in the System mode.

<Procedure/Transmitting>

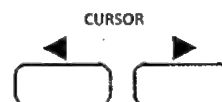
- (1) Press SYSTEM switch and call DATA DUMP function.

The DISPLAY shows as follows:

DATA DUMP
EXCL SET ALL



- (2) Select one from "EXCL", "SET" or "ALL" with CURSOR switches.

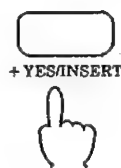


EXCL : Sends 4 EXCLUSIVE FADER patches (#01~#04)

SET : Sends 64 SETUP patches

ALL : Sends both of EXCLUSIVE FADER and SETUP patches, and all of SYSTEM settings

- (3) Press + YES switch to send. → DISPLAY shows "SURE?"



EXCLUSIVE SEND
SURE?

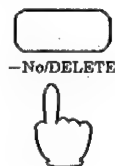
Press + YES again to complete. → DISPLAY shows "EXECUTING" → "COMPLETED!"



EXCLUSIVE SEND
EXECUTING

EXCLUSIVE SEND
COMPLETE!

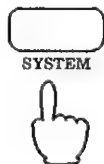
Or press – NO to cancel → returns to step (2)



EXCLUSIVE SEND
CANCEL!

<Procedure/Receiving>

- (1) Press SYSTEM switch and call DATA DUMP function.



DATA DUMP
EXCL SET ALL

- (2) Transmit the EXCLUSIVE data from other external MIDI device to MM-16.

DISPLAY shows "RECEIVED!",

EXCLUSIVE
RECEIVED!

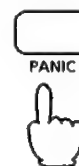
Note: When initiating the Data Dump function, ensure that the MM-16 corresponds to the System Channel of the external MIDI instruments.

Note: If the System Channel is in the OFF position (See page 32), the Data Dump function cannot be initiated.

5 – 2 PANIC Switch

By pressing this switch, the following information is output.

- * ALL NOTE OFF message
- * RESET ALL CONTROLLER message
- * BEND RESET message (For 16 channels)
- * HOLD OFF message (For 16 channels)



If you encounter unwanted MIDI results, like stuck notes, press this switch.

5 – 3 MONITOR Operation

If you wish to confirm the MIDI message channel currently in use, follow the procedures below.

- (1) Hold down two of CURSOR switches simultaneously.

DISPLAY shows as follows:



While holding down the switch, the above message on the monitor remains displayed.

To return to the previous display, release your finger from the cursor switch.

5 - 4 Error Messages

If there are any operation errors, the following Error Messages will be displayed, and the 3 Mode Indicators will flicker.

(1) MIDI RECEIVE/BUFFER OVER!!!

MIDI RECEIVE
BUFFER OVER!!!

<Causes>

- * The amount of data being received is too great.
- * The data receiving interval is too short.

<Countermeasures>

1. Press any MODE SELECT switch (the Error Message disappears).
2. Adjust the amount and interval of the data to be received, then operate again.

(2) MIDI TRANSMIT/BUFFER OVER!!!

MIDI TRANSMIT
BUFFER OVER!!!

<Causes>

Although high density data had been received while the Exclusive Fader was being operated, the Fader was forced to work continuously (or the Panic Switch was pressed several times).

<Countermeasures>

1. Press any Mode Switch (the Error Message disappears).
2. Adjust the operation volume of the Fader and Panic Switch.

Note: If receive/transmit buffer over is displayed, the following information will be output from the MIDI Out.

- * ALL NOTE OFF
- * BEND RESET
- * HOLD OFF
- * RESET ALL CONTROLLERS

(3) MIDI EVENT/BUFFER OVER!!!

MIDI EVENT
BUFFER OVER!!!

<Causes>

While the Exclusive Fader was being operated, the fader was forced to work continuously (or the Panic switch was pressed several times).

<Countermeasures>

1. Press any Mode switch (the Error Message disappears).
2. Adjust the operation volume of the Fader and Panic switch.

Appendices

A. EXCLUSIVE FADER PATCH LIST

Patch # 1	
1	K4 S1 ATTACK
2	K4 S1 DECAY
3	K4 S1 SUSTAIN
4	K4 S1 RELEASE
5	K4 S2 ATTACK
6	K4 S2 DECAY
7	K4 S2 SUSTAIN
8	K4 S2 RELEASE
9	K4 S3 ATTACK
10	K4 S3 DECAY
11	K4 S3 SUSTAIN
12	K4 S3 RELEASE
13	K4 S4 ATTACK
14	K4 S4 DECAY
15	K4 S4 SUSTAIN
16	K4 S4 RELEASE

(MIDI RCV CH:1)

Patch # 2	
1	K4 S1 VOLUME
2	K4 S2 VOLUME
3	K4 S3 VOLUME
4	K4 S4 VOLUME
5	K4 F1 CUTOFF
6	K4 F1 RESONANCE
7	K4 F2 CUTOFF
8	K4 F2 RESONANCE
9	K4 F1 ATTACK
10	K4 F1 DECAY
11	K4 F1 SUSTAIN
12	K4 F1 RELEASE
13	K4 F2 ATTACK
14	K4 F2 DECAY
15	K4 F2 SUSTAIN
16	K4 F2 RELEASE

(MIDI RCV CH:1)

Patch # 3	
1	XD-5 S1 VOLUME
2	XD-5 S2 VOLUME
3	XD-5 S3 VOLUME
4	XD-5 S4 VOLUME
5	XD-5 F1 CUTOFF
6	XD-5 F1 RESONANCE
7	XD-5 F2 CUTOFF
8	XD-5 F2 RESONANCE
9	XD-5 S1 ATTACK
10	XD-5 S1 RELEASE
11	XD-5 S2 ATTACK
12	XD-5 S2 RELEASE
13	XD-5 S3 ATTACK
14	XD-5 S3 RELEASE
15	XD-5 S4 ATTACK
16	XD-5 S4 RELEASE

(MIDI RCV CH:10)

Patch # 4	
1	K1 S1 ATTACK
2	K1 S1 DECAY
3	K1 S1 SUSTAIN
4	K1 S1 RELEASE
5	K1 S2 ATTACK
6	K1 S2 DECAY
7	K1 S2 SUSTAIN
8	K1 S2 RELEASE
9	K1 S3 ATTACK
10	K1 S3 DECAY
11	K1 S3 SUSTAIN
12	K1 S3 RELEASE
13	K1 S4 ATTACK
14	K1 S4 DECAY
15	K1 S4 SUSTAIN
16	K1 S4 RELEASE

(MIDI RCV CH:1)

Patch # 5	
1	K4 S1 VOLUME
2	K4 S2 VOLUME
3	K4 S3 VOLUME
4	K4 S4 VOLUME
5	K4 S1 VEL>LEVEL
6	K4 S2 VEL>LEVEL
7	K4 S3 VEL>LEVEL
8	K4 S4 VEL>LEVEL
9	K4 S1 COARSE
10	K4 S2 COARSE
11	K4 S3 COARSE
12	K4 S4 COARSE
13	K4 S1 FINE
14	K4 S2 FINE
15	K4 S3 FINE
16	K4 S4 FINE

(MIDI RCV CH:1)

Patch # 6	
1	K4 S1 WAVE1
2	K4 S1 WAVE2
3	K4 S1 KS>TIME
4	K4 S1 DELAY
5	K4 S1 ATTACK
6	K4 S1 DECAY
7	K4 S1 SUSTAIN
8	K4 S1 RELEASE
9	K4 S2 WAVE1
10	K4 S2 WAVE2
11	K4 S2 KS>TIME
12	K4 S2 DELAY
13	K4 S2 ATTACK
14	K4 S2 DECAY
15	K4 S2 SUSTAIN
16	K4 S2 RELEASE

(MIDI RCV CH:1)

Patch # 7	
1	K4 S3 WAVE1
2	K4 S3 WAVE2
3	K4 S3 KS>TIME
4	K4 S3 DELAY
5	K4 S3 ATTACK
6	K4 S3 DECAY
7	K4 S3 SUSTAIN
8	K4 S3 RELEASE
9	K4 S4 WAVE1
10	K4 S4 WAVE2
11	K4 S4 KS>TIME
12	K4 S4 DELAY
13	K4 S4 ATTACK
14	K4 S4 DECAY
15	K4 S4 SUSTAIN
16	K4 S4 RELEASE

(MIDI RCV CH:1)

Patch # 8	
1	K4 F1 CUTOFF
2	K4 F1 RESONANCE
3	K4 F1 ENV>DEPTH
4	K4 F1 VEL>DEPTH
5	K4 F1 ATTACK
6	K4 F1 DECAY
7	K4 F1 SUSTAIN
8	K4 F1 RESONANCE
9	K4 F2 CUTOFF
10	K4 F2 RESONANCE
11	K4 F2 ENV>DEPTH
12	K4 F2 VEL>DEPTH
13	K4 F2 ATTACK
14	K4 F2 DECAY
15	K4 F2 SUSTAIN
16	K4 F2 RESONANCE

(MIDI RCV CH:1)

Patch # 9	
1	K4 VIBRATO SHAPE
2	K4 VIBRATO SPEED
3	K4 VIBRATO DEPTH
4	K4 WHEEL DEPTH
5	K4 A. BEND TIME
6	K4 A. BEND DEPTH
7	K4 A. BEND KS>TIME
8	K4 A. BEND VEL>DEPTH
9	K4 PRESS FREQ.
10	K4 LFO SHAPE
11	K4 LFO SPEED
12	K4 LFO DELAY
13	K4 LFO DEPTH
14	K4 PRS>DEP
15	K4 PITCH BEND
16	K4 WHEEL ASSIGN

(MIDI RCV CH:1)

Patch # 10	
1	K4 EFF/OUT PATCH
2	K4 SUBMIX CHANNEL
3	K4 DRUM LEVEL
4	K4 DRUM VEL
5	K4 EFFECT TYPE
6	K4 EFFECT PARA 1
7	K4 EFFECT PARA 2
8	K4 EFFECT PARA 3
9	K4 SUB A PAN
10	K4 SUB B PAN
11	K4 SUB C PAN
12	K4 SUB D PAN
13	K4 SUB E PAN
14	K4 SUB F PAN
15	K4 SUB G PAN
16	K4 SUB H PAN

(MIDI RCV CH:1)

Patch # 11	
1	XD-5 S1 WAVE 1
2	XD-5 S1 WAVE 2
3	XD-5 S1 VOLUME
4	XD-5 S1 COARSE
5	XD-5 S1 ATTACK
6	XD-5 S1 DECAY
7	XD-5 S1 SUSTAIN
8	XD-5 S1 RELEASE
9	XD-5 S2 WAVE 1
10	XD-5 S2 WAVE 2
11	XD-5 S2 VOLUME
12	XD-5 S2 COARSE
13	XD-5 S2 ATTACK
14	XD-5 S2 DECAY
15	XD-5 S2 SUSTAIN
16	XD-5 S2 RELEASE

(MIDI RCV CH:10)

Patch # 12	
1	XD-5 S3 WAVE 1
2	XD-5 S3 WAVE 2
3	XD-5 S3 VOLUME
4	XD-5 S3 COARSE
5	XD-5 S3 ATTACK
6	XD-5 S3 DECAY
7	XD-5 S3 SUSTAIN
8	XD-5 S31 RELEASE
9	XD-5 S4 WAVE 1
10	XD-5 S4 WAVE 2
11	XD-5 S4 VOLUME
12	XD-5 S4 COARSE
13	XD-5 S4 ATTACK
14	XD-5 S4 DECAY
15	XD-5 S4 SUSTAIN
16	XD-5 S4 RELEASE

(MIDI RCV CH:10)

Patch # 13	
1	XD-5 F1 CUTOFF
2	XD-5 F1 RESONANCE
3	XD-5 F1 ENV>DEPTH
4	XD-5 F1 VEL>DEPTH
5	XD-5 F1 ATTACK
6	XD-5 F1 DECAY
7	XD-5 F1 SUSTAIN
8	XD-5 F1 RELEASE
9	XD-5 F2 CUTOFF
10	XD-5 F2 RESONANCE
11	XD-5 F2 ENV>DEPTH
12	XD-5 F2 VEL>DEPTH
13	XD-5 F2 ATTACK
14	XD-5 F2 DECAY
15	XD-5 F2 SUSTAIN
16	XD-5 F2 RELEASE

(MIDI RCV CH:10)

Patch # 14	
1	K1 S1 VOLUME
2	K1 S2 VOLUME
3	K1 S3 VOLUME
4	K1 S4 VOLUME
5	K1 S1 VEL>LEVEL
6	K1 S2 VEL>LEVEL
7	K1 S3 VEL>LEVEL
8	K1 S4 VEL>LEVEL
9	K1 VIBRATO SPEED
10	K1 VIBRATO DEPTH
11	K1 A. BEND TIME
12	K1 A. BEND DEPTH
13	K1 PRESS FREQ.
14	K1 LFO SHAPE
15	K1 LFO SPEED
16	K1 PITCH BEND

(MIDI RCV CH:1)

Patch # 15	
1	K1 S1 WAVE 1
2	K1 S1 WAVE 2
3	K1 S1 COARSE
4	K1 S1 KS>TIME
5	K1 S1 ATTACK
6	K1 S1 DECAY
7	K1 S1 SUSTAIN
8	K1 S1 RELEASE
9	K1 S2 WAVE 1
10	K1 S2 WAVE 2
11	K1 S2 COARSE
12	K1 S2 KS>TIME
13	K1 S2 ATTACK
14	K1 S2 DECAY
15	K1 S2 SUSTAIN
16	K1 S2 RELEASE

(MIDI RCV CH:1)

Patch # 16	
1	K1 S3 WAVE 1
2	K1 S3 WAVE 2
3	K1 S3 COARSE
4	K1 S3 KS>TIME
5	K1 S3 ATTACK
6	K1 S3 DECAY
7	K1 S3 SUSTAIN
8	K1 S3 RELEASE
9	K1 S4 WAVE 1
10	K1 S4 WAVE 2
11	K1 S4 COARSE
12	K1 S4 KS>TIME
13	K1 S4 ATTACK
14	K1 S4 DECAY
15	K1 S4 SUSTAIN
16	K1 S4 RELEASE

(MIDI RCV CH:1)

B. MIDI DATA FORMAT

CONTENTS

1. TRANSMITTED DATA
2. RECOGNIZED RECEIVE DATA
3. EXCLUSIVE DATA FORMAT
4. EXCLUSIVE TRANSMITTED DATA
5. DATA LIST

1. TRANSMITTED DATA

1st	2nd	3rd	Description	
1000nnnn	0kkkkkkk	0vvvvvvv	Note off	kkkkkkk=0~127 Echo Only vvvvvv=0~127
1001nnnn	0kkkkkkk	0vvvvvvv	Note on	kkkkkkk=0~127 Echo Only vvvvvv=1~127
			Note off	vvvvvv=0
1010nnnn	0kkkkkkk	0vvvvvvv	Key Press.	kkkkkkk=0~127 Echo Only vvvvvv=0~127
1011nnnn	0kkkkkkk	0vvvvvvv	Ctrl.Change	kkkkkkk=0~127 vvvvvv=0~127
1100nnnn	0kkkkkkk	-----	Prg.Change	kkkkkkk=0~127
1101nnnn	0kkkkkkk	-----	Ch.Press	kkkkkkk=0~127
1110nnnn	0kkkkkkk	0vvvvvvv	Pitch Bend	kkkkkkk=0~127 vvvvvv=0~127
11110001	0kkkkkkk	-----	Time Code	kkkkkkk=0~127 Echo Only
11110010	0kkkkkkk	0kkkkkkk	Song Position	kkkkkkk=0~127 Echo Only
11110011	0kkkkkkk	-----	Song Select	kkkkkkk=0~127 Echo Only
11110110	-----	-----	Tune Request	Echo Only
11111000	-----	-----	Clock	Echo Only
11111010	-----	-----	Start	Echo Only
11111011	-----	-----	Continue	Echo Only
11111100	-----	-----	Stop	Echo Only

nnnn=Channel no.

2. RECOGNIZED RECEIVE DATA

1st	2nd	3rd	Description	
1100nnnn	0kkkkkkk	-----	Prg.Change	kkkkkkk=0~127 nnnn=Channel no.

3. EXCLUSIVE DATA FORMAT

Followings are exclusive data of the MM-16, based on "KAWAI MIDI EXCLUSIVE FORMAT"

MM-16 MIDI EXCLUSIVE FORMAT

Status	11110000	F0h	System exclusive
Kawai ID no.	01000000	40h	
Channel no.	0000nnnn	0nh	
Function no.	01111111		
Group no.	00000111	07h	Others Group
Machine ID no.	00000000	00h	MM-16 ID no.
Sub	0sssssss		Sub command
Data	0xxxxxxx		
Data	0xxxxxxx		
.			
.			
.			
Data	0xxxxxxx		
Data	0xxxxxxx		
EOX	11110111	F7h	

The Exclusive data is received only when The system ch.=1~16, and when the mode=DATA DUMP.

4. EXCLUSIVE TRANSMITTED DATA

4-1 EXCLUSIVE FADER

Status	11110000	F0h	System Exclusive
Data1	0xxxxxxx		
Data2	0xxxxxxx		
.			
.			
.			
Data15	0xxxxxxx		
Data16	0xxxxxxx		
EOX	11110111	F7h	

The user can set the data-lengths.

The user can set the data.

4-2 EXCLUSIVE PATCH DATA DUMP

Status	11110000	F0h	System Exclusive
KAWAI ID no.	01000000	40h	
Channel no.	0000nnnn		
Function no.	00100001	21h	All block data dump
Group no.	00000111	07h	Others group
Machine ID no.	00000000	00h	MM-16 ID no.
Sub	00000000	00h	Exclusive patch data dump
data	0000xxxx		Exclusive1-1 1st data upper
data	0000xxxx		Exclusive1-1 1st data lower
data	0000xxxx		Exclusive1-1 2nd data upper
data	0000xxxx		Exclusive1-1 2nd data lower
.			
.			
data	0000xxxx		Exclusive1-1 15th data upper
data	0000xxxx		Exclusive1-1 15th data lower
data	0000xxxx		Exclusive1-1 16th data upper
data	0000xxxx		Exclusive1-1 16th data lower

Exclusive 1-2 data
Exclusive 1-3 data

Exclusive4-15 data
Exclusive4-16 data

EOX 11110111h F7h

4-3 SETUP PATCH DATA DUMP

Status	11110000	F0h	System Exclusive
KAWAI ID no.	01000000	40h	
Channel no.	0000nnnn		
Function no.	00100001	21h	All block data dump
Group no.	00000111	07h	Others group
Machine ID no.	00000000	00h	MM-16 ID no.
Sub	00000001	01h	Setup patch data dump
data	0000xxxx		Setup1 Fader on/off flag upper
data	0000xxxx		Setup1 Fader on/off flag lower
data	0000xxxx		Setup1 Setup volume1 upper
data	0000xxxx		Setup1 Setup volume1 lower
data	0000xxxx		Setup1 Setup volume2 upper
data	0000xxxx		Setup1 Setup volume2 lower
.			
.			
.			
data	0000xxxx		Setup1 Setup volume16 upper
data	0000xxxx		Setup1 Setup volume16 lower
data	0000xxxx		Setup1 Setup volume17 upper
data	0000xxxx		Setup1 Setup volume17 lower
data	0000xxxx		Setup1 Setup program1 upper
data	0000xxxx		Setup1 Setup program1 lower
data	0000xxxx		Setup1 Setup program2 upper
data	0000xxxx		Setup1 Setup program2 lower
.			
.			
.			
data	0000xxxx		Setup1 Setup program15 upper
data	0000xxxx		Setup1 Setup program15 lower
data	0000xxxx		Setup1 Setup program16 upper
data	0000xxxx		Setup1 Setup program16 lower
data	0000xxxx		Setup1 Channel convert table1 upper
data	0000xxxx		Setup1 Channel convert table1 lower
data	0000xxxx		Setup1 Channel convert table2 upper
data	0000xxxx		Setup1 Channel convert table2 lower
.			
.			
.			
data	0000xxxx		Setup1 Channel convert table7 upper
data	0000xxxx		Setup1 Channel convert table7 lower
data	0000xxxx		Setup1 Channel convert table8 upper
data	0000xxxx		Setup1 Channel convert table8 lower
data	0000xxxx		Setup1 Name 1st data upper
data	0000xxxx		Setup1 Name 1st data lower
data	0000xxxx		Setup1 Name 2nd data upper
data	0000xxxx		Setup1 Name 2nd data lower
.			
.			
.			
data	0000xxxx		Setup1 Name 7th data upper

```
data          0000xxxx          Setup1 Name 7th data lower
data          0000xxxx          Setup1 Name 8th data upper
data          0000xxxx          Setup1 Name 8th data lower

          Setup2 data
          Setup3 data
          Setup4 data
          .
          .
          .

          Setup62 data
          Setup63 data
          Setup64 data
```

EOX 11110111 F7h

4-4 ALL PATCH DATA DUMP

Status	11110000	F0h	System Exclusive
KAWAI ID no.	01000000	40h	
Channel no.	0000nnnn		
Function no.	00100001	22h	All dump
Group no.	00001111	07h	Others group
Machine ID no.	00000000	00h	MM-16 ID no.
Sub	00000001	02h	All data dump
data	0000xxxx		System system ch. upper
data	0000xxxx		System system ch. lower
data	0000xxxx		System setup link table1 upper
data	0000xxxx		System setup link table1 lower
data	0000xxxx		System setup link table2 upper
data	0000xxxx		System setup link table2 lower
.			
.			
.			
data	0000xxxx		System setup link table127 upper
data	0000xxxx		System setup link table127 lower
data	0000xxxx		System setup link table128 upper
data	0000xxxx		System setup link table128 lower
data	0000xxxx		System separate menu upper
data	0000xxxx		System separate menu lower
data	0000xxxx		System ch.separate 1
data	0000xxxx		System ch.separate 2
data	0000xxxx		System ch.separate 3
data	0000xxxx		System ch.separate 4
data	0000xxxx		System ch.separate 5
data	0000xxxx		System ch.separate 6
data	0000xxxx		System ch.separate 7
data	0000xxxx		System ch.separate 8
data	0000xxxx		System odd/even separate 1
data	0000xxxx		System odd/even separate 2
data	0000xxxx		System odd/even separate 3
data	0000xxxx		System odd/even separate 4
data	0000xxxx		System key split separate 1
data	0000xxxx		System key split separate 2
data	0000xxxx		System key split separate 3
data	0000xxxx		System key split separate 4
data	0000xxxx		System split point upper
data	0000xxxx		System split point lower
data	0000xxxx		System vel.split separate 1
data	0000xxxx		System vel.split separate 2
data	0000xxxx		System vel.split separate 3
data	0000xxxx		System vel.split separate 4
data	0000xxxx		System key split key no. upper
data	0000xxxx		System key split key no. lower
data	0000xxxx		System vel.split velocity upper
data	0000xxxx		System vel.split velocity lower

```

data          0000xxxx  System data dump value upper
data          0000xxxx  System data dump value lower

Setup1 data
Setup2 data
Setup3 data
.
.
.
Setup62 data
Setup63 data
Setup64 data

Exclusive1-2 data
Exclusive1-3 data
.
.
Exclusive4-15 data
Exclusive4-16 data

EOX          11110111h F7h

```

5. DATA LIST

5-1. Exclusive patch data

```

nnnnmmmm Exclusive 1st data 00h~7fh
nnnnmmmm Exclusive 2nd~16th data 00h~7fh,##(flh),dummy(feh)
nnnnmmmm Exclusive Name 1st~8th data Ascii

```

5-2. Setup patch data

```

n000000m fader on/off flag n=1:volume=off
n=0:volume=on
m=1:fader=off
m=0:fader=on

0nnnnmmmm setup volume1~17 0~127

pnnnnmmmm setup program1~16 nnnmm=0~127(program no.)
p=1:-
p=0:T
nnnnmmmm channel convert table1 nnn=1~16 (ch.2)
mmmm=1~16 (ch.1)
nnnnmmmm channel convert table2 nnn=1~16 (ch.4)
mmmm=1~16 (ch.3)
nnnnmmmm channel convert table3 nnn=1~16 (ch.6)
mmmm=1~16 (ch.5)
nnnnmmmm channel convert table4 nnn=1~16 (ch.8)
mmmm=1~16 (ch.7)
nnnnmmmm channel convert table5 nnn=1~16 (ch.10)
mmmm=1~16 (ch.9)
nnnnmmmm channel convert table6 nnn=1~16 (ch.12)
mmmm=1~16 (ch.11)
nnnnmmmm channel convert table7 nnn=1~16 (ch.14)
mmmm=1~16 (ch.13)
nnnnmmmm channel convert table8 nnn=1~16 (ch.16)
mmmm=1~16 (ch.15)

```

5-3. System data

```

p000mmmm system channel nnnmm=1~16
p=1:off

pnnnnmmmm setup link table1~128 nnnmmmm=1~64
p=1:-

nnnnmmmm separate menu nnnnnmmmm=01h:off
nnnnmmmmmm=02h:channel
nnnnmmmmmm=04h:odd/even
nnnnmmmmmm=08h:key split
nnnnmmmmmm=10h:vel.split
nnnnmmmmmm=20h:real time

abdefgh ch.separate 1(abcd),2(efgh)
ijklmnop ch.separate 5(ijkl),6(mnop)
a=0&i=0:ch9=" ",a=1&i=0:ch9=2,a=0&i=1:ch9=1,a=1&i=1:ch9=-
b=0&j=0:ch10=" ",b=1&j=0:ch10=2,b=0&j=1:ch10=1,b=1&j=1:ch10=-
.
.
g=0&o=0:ch15=" ",g=1&o=0:ch15=2,g=0&o=1:ch15=1,g=1&o=1:ch15=-
h=0&p=0:ch16=" ",h=1&p=0:ch16=2,h=0&p=1:ch16=1,h=1&p=1:ch16=-
.
.

```

```

abdefgh ch.separate 3(abcd),4(efgh)
ijklmnop ch.separate 7(ijkl),8(mnop)
a=0&i=0:ch1=" ",a=1&i=0:ch1=2,a=0&i=1:ch1=1,a=1&i=1:ch1=-
b=0&j=0:ch2=" ",b=1&j=0:ch1=2,b=0&j=1:ch1=1,b=1&j=1:ch1=-
.
.
g=0&o=0:ch7=" ",g=1&o=0:ch7=2,g=0&o=1:ch7=1,g=1&o=1:ch7=-
h=0&p=0:ch8=" ",h=1&p=0:ch8=2,h=0&p=1:ch8=1,h=1&p=1:ch8=-

```

```

abdefgh odd/even separate 1(abcd),2(efgh)
a=0:ch9=s,a=1:ch9=" "
b=0:ch10=s,b=1:ch10=" "
.
.
g=0:ch15=s,g=1:ch15=" "
h=0:ch16=s,h=1:ch16=" "

```

```

ijklmnop odd/even separate 3(ijk),4(mnop)
i=0:ch1=s,i=1:ch1=" "
j=0:ch2=s,j=1:ch2=" "
.
.
o=0:ch7=s,o=1:ch7=" "
p=0:ch8=s,p=1:ch8=" "

```

```

abdefgh key split separate 1(abcd),2(efgh)
a=0:ch9=s,a=1:ch9=" "
b=0:ch10=s,b=1:ch10=" "
.
.
g=0:ch15=s,g=1:ch15=" "
h=0:ch16=s,h=1:ch16=" "

```

```

ijklmnop key split separate 3(ijk),4(mnop)
i=0:ch1=s,i=1:ch1=" "
j=0:ch2=s,j=1:ch2=" "
.
.
o=0:ch7=s,o=1:ch7=" "
p=0:ch8=s,p=1:ch8=" "

```

```

n000000m split point (out put port select) n=0:key split " 2"
n=1:key split " 1"
m=0:vel.split " 2"
m=1:vel.split " 1"

```

```

abdefgh vel.split separate 1(abcd),2(efgh)
a=0:ch9=s,a=1:ch9=" "
b=0:ch10=s,b=1:ch10=" "
.
.
g=0:ch15=s,g=1:ch15=" "
h=0:ch16=s,h=1:ch16=" "

```

```

ijklmnop vel.split separate 3(ijk),4(mnop)
i=0:ch1=s,i=1:ch1=" "
j=0:ch2=s,j=1:ch2=" "
.
.
o=0:ch7=s,o=1:ch7=" "
p=0:ch8=s,p=1:ch8=" "

```

```

nnnnmmmm key split key no. nnnnnmmmm=18h~7fh (c0~g8)

```

```

nnnnmmmm vel.split velocity nnnnnmmmm=0~7fh (0~127)

```

```

nnnnmmmm data dump value nnnnnmmmm=01h:EXCL
nnnnmmmmmm=02h:SET
nnnnmmmmmm=03h:ALL

```

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MIDI Implementation Chart

MIDI Mixer
Model : MM-16

Date : Oct. 1990
Version : 1.0

Function	Transmitted	Received	Remarks
Basic : Default Channel : Changed	1 - 16 1 - 16	1 - 16 1 - 16	Memorized
Mode : Default : Message : Altered	OMNI ON/OFF, POLY, MONO *****	X X	
Note : True Voice Number	0 - 127 *****	X	
Velocity : Note ON : Note OFF	○* ○*	X X	
After : Key's Touch : Ch's	○* ○	X X	
Pitch Bend	○	X	
Control Change	1 ○	x	Modulation
	2 ○	x	Breath Control
	4 ○	x	Foot Control
	5 ○	x	Portament Time
	6 ○	x	Data Entry
	7 ○	x	Volume
	8 ○	x	Balance Control
	10 ○	x	Panpot
	11 ○	x	Expression
	64 ○	x	Hold 1
100,101 ○	x		RPN LSB, MSB
Others ○*	x		
Program : True No. Change	○ *****	○ 0 - 127	
Exclusive	○	○	
System : Song Pos Common : Song Sel : Tune	○* ○* ○*	X X X	
System : Clock Real Time : Commands	○* ○*	X X	
Aux : Local ON/OFF : All Notes OFF Messages : Active Sense : Reset	○* ○ ○ X	X X X X	
Notes	○* = Echo only		

Mode 1 : OMNI ON, POLY
Mode 3 : OMNI OFF, POLY

Mode 2 : OMNI ON, MONO
Mode 4 : OMNI OFF, MONO

○ : Y
x : N

MM-16 SPECIFICATIONS

FADER CONTROLS	16 + 1 (MASTER VOLUME)
MANUAL MODE	VOLUME VELOCITY OFFSET VELOCITY ABSOLUTE CHANNEL CONTROL KEY BALANCE EXCLUSIVE FADER (16 PATCHES: 4 USER + 12 PRESET) EXCLUSIVE EDIT (DATA/NAME)
SETUP MODE	SETUP PATCH : 64 PATCHES SETUP EDIT : SETUP VOLUME (16 CHANNELS) SETUP PROGRAM CHANGE (16 CHANNEL) CHANNEL CONVERT (AVAILABLE FOR EACH OF 16 CHANNELS) FADER ON/OFF SETUP NAME
SYSTEM MODE	SYSTEM CHANNEL (OFF/1~16) SETUP LINK SEPARATE MENU ... OFF CAHNNEL ODD/EVEN KEY SPLIT VELOCITY SPLIT REAL TIME DATA DUMP (EXCLUSIVE/SETUP/ALL)
OTHERS	PREVIOUS SWITCH SEND FADER POSITION SWITCH WRITE SWITCH 10 KEYS (0 ~ 9) SHIFT SWITCH VALUE SWITCH (-NO/DELETE, +YES/INSERT) CURSOR SWITCHES PANIC SWITCH MONITOR FUNCTION (MIDI IN/OUT CHANNEL)
DISPLAY	16 x 2 LCD BACKLIT
JACKS	DC IN, MIDI IN x 2, MIDI OUT x 2, MIDI THRU x 2
DIMENSIONS	328 (W) x 203 (D) x 57 (H) mm
WEIGHT	1.4kg

KAWAI

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